A Report of the Work

CARRIED OUT AT

THE RADIUM INSTITUTE

FROM AUGUST 14TH, 1911, TO DECEMBER 31ST, 1912.

BY

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(Published with the Authority of the Committee.)

THIS report deals with all the cases which have presented themselves for treatment at the Radium Institute during the period extending from August 14th, 1911, to December 31st, 1912. For its correct appreciation it is necessary to state at the outset that the cases treated were in no instance selected. Ever since the opening of the Institute applications have been received for the treatment of patients many of whom have exhausted all the known resources of medicine and surgery, their condition being almost hopeless.

The only cases refused have been those in which the patients were practically moribund, or where the disease was of a kind for which radium therapy was manifestly unsuitable.

It has been the purpose of the Committee to give equal prominence to the cases in which radium has appeared to be useful, as well as to those in which it has been useless or possibly harmful.

It is one object of this report to point out the conditions under which radium is therapeutically of no service.

The repute of radium therapy has suffered severely from that irrational enthusiasm and that unthinking expectation which often attend the début of a new remedy. These distorting influences have been especially marked in the present instance, for radium has astounding physical qualities, and it seems to have been assumed that its therapeutic powers must be equally penetrative and marvellous.

It is important to note that no examples of malignant disease—rodent ulcer alone excepted—have been treated, other than those in which operation had been declared to be unjustified or in which operation had been absolutely declined by the patient.

The term "apparent cure," used in relation to cases of malignant disease, must be interpreted as representing a condition in which all trace of the original lesion or lesions has disappeared, in which there is no sign of any recurrence, and in which the patient is, so far as can be determined by a thorough and careful examination, free from any indication or symptom of the disease.

With reference to the figures appearing in the column headed "abandoned treatment," it must be explained that in not a few instances treatment was given up because the patient had been obliged to leave London or was unable to defray the cost of repeatedly travelling from the country to the Institute.

THE APPARATUS.

APPLICATORS.

The method by which the apparatus is prepared is explained more fully in the appendix on the work of the Chemico-Physical Laboratory by Mr. W. L. S. Alton. Here it will be sufficient to give the following particulars:—

The apparatus employed in treatment is of several types:

(*a*) *Flat varnished applicators*, rectangular, square, and circular; the superficial area of the various applicators ranging from 0.7 sq. cm. to 28 sq. cm.

They are either—

1. Full strength, containing an amount of radium sulphate equivalent to 10 mg. of radium bromide to each square centimetre.
2. Half strength, containing an amount of radium sulphate equivalent to 5 mg. of radium bromide to each square centimetre.
3. Quarter strength, containing an amount of radium sulphate equivalent to 2.5 mg. of radium bromide to each square centimetre.

The smallest applicator contains ...	7 mg.
The largest " " ...	150 mg.

(*b*) *Capillary glass tubes, filled with radium sulphate*, closely packed so as to prevent any movement of the salt.

Their length varies from ...	2 to 4 cm.
Their diameter " " ...	0.2 to 0.3 cm.

The amount of radium sulphate contained is the equivalent of 25, 30, 50, 60 or 100 mg. of radium bromide.

(*c*) *Radium emanation.* This may be—

1. Collected in glass tubes or metal containers, and used with appropriate screens, exactly as the radium salts themselves are used, due regard being paid to the gradual fall in radio-activity resulting from the decay of the emanation.
2. Dissolved in distilled water or a weak saline solution, and administered by drinking or injection.

SCREENS.

The screens employed as filters for the different rays are:

(*a*) *Aluminium*—0.01, 0.02, 0.04, 0.08 mm. thick. These are principally used with short exposures in the treatment of capillary naevi, pruritus, neuro-dermatitis, and superficial skin lesions.

(*b*) *Silver*—0.5 and 1 mm. thick. These are most useful as shields for the glass tubes of radium when introduced into tumours, and also in the treatment of keloid and vicious cicatrices.

(*c*) *Lead*—0.1, 0.2, 0.4, 0.5, 1, 1.5, and 2 mm. thick. Screens less than 0.5 mm. in thickness are valuable in the treatment of flat superficial epitheliomata, leucoplakia fibromata, and granulomata.

Those exceeding 0.5 mm. are used when it is desired to employ the hard beta and gamma rays only, and to give prolonged applications without causing any surface irritation.

METHODS OF APPLICATION.

Duration of Applications (Exposures).

Very short exposures of half a minute to three minutes' duration, according to the age of the patient and the character of the lesion. Principally used in the treatment of superficial skin troubles. The apparatus is applied without any screen beyond that afforded by a covering of thin rubber sheeting.

Short exposures of five minutes to one hour's duration. Most frequently resorted to when treating warts, senile keratoma, some forms of naevi, shallow ulcers, lupus erythematosus, etc. The screening in these exposures rarely exceeds 0.04 mm. of aluminium.

Moderately long exposures of one to eight hours, adopted when it is desired to obtain the destructive action of the rays. Used in cases of rodent ulcer, rapidly growing epithelioma, lupus vulgaris, etc. No screening beyond thin rubber sheeting is employed, and a total exposure of three to eight hours is extended over two, three, or four days.

Prolonged exposures of twelve to one hundred hours, or longer. These are employed in the treatment of deep-seated malignant growths, in cancer of the rectum, uterus, breast, etc. Lead screens are always employed, usually of 2 mm. thickness. Exposures are given in periods of six to twelve hours, with an interval of at least twelve hours between successive exposures.

Screens and Appliances.

A varnished applicator is always covered with a thin layer of rubber sheeting, thus effectively protecting it from contact with any excretions or moisture, and avoiding the necessity of repeatedly cleaning the apparatus.

When silver or lead screens are used, the passage of the gamma rays through these metals gives rise to secondary rays, which are very irritating, though their action is superficial only, and it becomes necessary to absorb these rays. With this object, from six to twenty-four sheets of black photographic paper and one or two layers of lint are interposed between the metal screen and the outer rubber covering. When tubes shielded with lead or silver screens are introduced into the vagina, rectum, uterus, etc., they are enveloped in rubber tubing of 3 mm. thickness for the same purpose. These secondary rays vary greatly in amount according to the nature of the metal and the thickness of the screen employed.

The lesion to be treated is gently cleaned and dried, and all crusts or flakes of secretion are removed. The healthy skin and tissues surrounding the lesion must be carefully protected by a layer of lead-rubber sheeting—similar to that used in *x*-ray work—an aperture being cut in the sheeting the exact size and shape of the lesion. For external lesions the apparatus is best fixed in position with some non-irritant adhesive rubber plaster.

To retain tubes in the vagina or uterus the employment of a tampon is generally necessary. In the rectum, nasal and buccal cavities the apparatus is attached to a handle of thick silver wire, which can be easily bent and fastened to the gluteal fold, cheek, or ear by adhesive plaster.

THE REACTION.

All tissues when treated with radium respond in some manner, but the nature and extent of this response vary very greatly, and depend upon:

1. *The apparatus, screening and dosage employed.*
2. *The nature of the tissue treated.*
3. *The condition of the tissue treated.* If *x* rays, ionization, CO_2 snow, etc., have been previously used in the attempts to bring about a cure, the reaction in such cases is frequently atypical, and repair is exceedingly slow.
4. *The extent of the area treated.* The reaction is dependent not only upon the strength of the applicator, but also upon its superficial area. For example, the reaction from an applicator of half strength applied over an area of 4 sq. cm. is often not more intense in degree than that obtained with an applicator of quarter strength over a surface area of 16 sq. cm.
5. *Personal idiosyncrasy.* This is most important and often productive of curiously puzzling results. In this respect factors to be considered are age, sex, and temperament, susceptibility to actinic rays generally—for example, as in persons who suffer much from freckling or solar eczema—hyperidrosis, exalted vasomotor sensibility, etc.

Nature of Reaction.

The reaction usually appears between the seventh and fifteenth days and may vary in character from a slight erythema to a destructive ulceration.

Four degrees may be clearly distinguished:

1. Simple erythema.
2. Erythema followed by desquamation.
3. Vesication with superficial ulceration.
4. Deep ulceration; sometimes accompanied by the production of an eschar.

With some patients the time of reaction is much delayed, with others the response is exceedingly prompt, and it is difficult, if not impossible, to say why this difference should be. It is particularly noticeable in the treatment of capillary naevi, and cases have been seen in which, instead of the reaction appearing on about the seventh or eighth day, it has been evident three days after the exposure. In others a period of four weeks has elapsed before any effect has been perceptible, though in all of these cases the applicators employed, the screening, and the times of exposure have been identical.

The increased susceptibility to changes of temperature over areas that have been treated with radium is very remarkable, and many patients who have had rodent ulcers and superficial skin lesions cured with radium state that they experience great discomfort at the site of the old lesion when very cold or very warm air plays upon it. This susceptibility, however, gradually returns to the normal in two or three months.

A very marked condition of lethargy is frequently, it might almost be said invariably, noted in patients receiving prolonged exposures with large quantities of heavily screened radium. It generally makes its appearance about the fourth day of the treatment, and passes off within a few days of the cessation of the exposures.

RESULTS OF TREATMENT OF DISEASE.

The results of treatment in 578 cases treated by radium or its emanation at the Radium Institute are given in the following tables. It will be noted in Table I, which contains a summary of 657 cases, that 38 were examined but not treated, and that in 41 the treatment is too recent to enable any conclusion as to the results of treatment to be stated. In Table II the cases are arranged according to the nature of the disease and its site. The tables are followed by a general discussion in which typical cases of the various conditions are reported in detail.

TABLE I.—Summary of Cases.

Examined but not treated	38	Improved	245
Recently treated and results not yet noted	41	Not improved	70
Received prophylactic irradiation only	39	Abandoned treatment	88
Apparently cured	53	Dead	55
Cured	28	Total	657

TABLE II.—CLASSIFICATION OF CASES.

Disease.	Examined but not Treated.	Recently Treated, but Results not yet Noted.	Received Prophylactic Irradiation only.	Apparently Cured.	Cured.	Improved.	Not Improved.	Abandoned Treatment.	Dead.	Total.
CARCINOMATA.										
Squamous-celled (Epitheliomata)—										
Buccal, lingual, and pharyngeal mucous membranes	6	3	8	—	—	10	15	9	9	60
Oesophagus	3	—	—	—	—	2	—	1	5	11
Larynx	2	1	—	—	—	—	—	—	3	6
Cheek and hand ...	—	3	2	4	—	3	2	2	—	16
Neck and scalp ...	1	—	1	—	—	1	—	—	—	3
Vagina and vulva ...	—	—	3	—	—	3	1	1	—	8
Uterus	—	1	1	3	—	19	2	10	5	41
Penis	1	—	—	—	—	1	—	—	—	2
Spheroidal-celled—										
Breast	2	5	9	1	—	34	11	15	12	89
Liver and gall bladder	—	—	—	—	—	—	—	—	3	3
Thyroid...	—	—	—	1	—	1	—	—	—	2
Paget's Disease	—	—	—	1	—	1	—	—	—	2
Columnar-celled—										
Large intestine ...	2	—	3	—	—	1	—	1	—	7
Rectum	3	1	2	1	—	9	6	17	4	43
Stomach	—	—	—	—	—	2	1	2	2	7
Ovary	1	—	—	—	—	2	—	—	2	5
Testicle	—	—	—	—	—	—	—	1	—	1
Prostate	—	—	—	—	—	—	1	1	—	2
RODENT ULCER	—	10	1	31	—	41	12	6	—	101
SARCOMATA—										
Spindle-celled... ...	3	1	7	—	—	4	2	1	1	19
Round-celled	1	—	—	1	—	2	3	2	2	11
Melanotic	—	—	—	—	—	—	—	2	1	3
Endothelioma ...	—	—	—	—	—	—	—	—	1	1
Lymphosarcomata ...	—	—	—	1	—	1	—	—	2	4
Lymphadenoma (Hodgkin's disease)	—	—	—	—	—	4	—	—	—	4
Malignant disease of glands	—	1	—	—	—	3	1	2	2	9
Parotid tumour	1	—	—	2	—	4	—	—	—	7
Abdominal tumours ...	—	—	—	—	—	2	—	1	1	4
Mediastinal tumours ...	—	—	—	—	—	1	—	—	—	1
Villous tumour of bladder	3	2	2	—	—	2	—	1	—	10
Granulomata	1	—	—	—	2	1	—	1	—	5
Adenoma of breast ...	—	—	—	—	—	1	—	1	—	2
Adenoma of thyroid ...	—	—	—	—	—	—	1	—	—	1
Fibroid disease of uterus	1	1	—	—	—	3	—	—	—	5

Disease.	Examined but not Treated.	Recently Treated, but Results not yet Noted.	Received Prophylactic Irradiation only.	Apparently Cured.	Cured.	Improved.	Not Improved.	Abandoned Treatment.	Dead.	Total.
Fibroma of penis	—	—	—	—	2	—	—	—	—	2
Enchondroma	—	—	—	—	—	1	—	—	—	1
Leucoplakia	—	—	—	—	2	1	—	—	—	3
NAEVI—										
Capillary	—	2	—	—	3	25	1	—	—	31
Cavernous	—	1	—	—	2	7	—	—	—	10
MOLES AND WARTS AND PAPILLOMATA	2	1	—	—	6	6	1	2	—	18
TUBERCULOSIS—										
Of glands	1	—	—	2	—	1	—	—	—	4
Of periosteum... ...	—	—	—	—	—	—	1	—	—	1
Of skin (lupus vulgaris)	1	—	—	—	—	2	—	—	—	3
Of conjunctiva ...	—	—	—	1	—	—	—	—	—	1
Trachoma	—	—	—	—	—	4	—	—	—	4
Spring catarrh	—	—	—	1	—	4	—	—	—	5
Chronic mastitis	—	—	—	—	1	—	—	—	—	1
Endocervicitis	—	—	—	—	—	1	—	—	—	1
Urethritis	—	—	—	—	—	—	1	—	—	1
Hypertrophic nasal mucosa	—	—	—	1	—	—	—	—	—	1
Varicose ulcer	—	—	—	—	—	1	—	—	—	1
Tropical ulcer	1	—	—	—	—	1	—	—	—	2
Rectal stricture	—	1	—	—	—	—	—	—	—	1
SKIN DISEASES (various)—										
Keloid and keloid acne	1	2	—	—	3	8	—	3	—	17
Lupus erythematosus	—	—	—	—	1	5	—	—	—	6
Psoriasis	—	—	—	2	—	5	—	—	—	7
Pruritus...	—	—	—	—	1	2	—	2	—	5
Chronic eczema ...	—	—	—	—	1	—	—	—	—	1
Lichenification of skin	—	—	—	—	2	1	—	1	—	4
Hyperkeratosis of nipple	—	—	—	—	1	—	—	—	—	1
Ichthyosis hystrix ...	—	—	—	—	—	1	—	—	—	1
Mycosis fungoides ...	—	—	—	—	—	1	—	—	—	1
Xerodermia pigmentosa	—	—	—	—	—	—	1	—	—	1
Locomotor ataxy	—	—	—	—	—	—	1	—	—	1
Diabetes mellitus... ...	—	—	—	—	—	—	—	1	—	1
Arthritis deformans ...	1	4	—	—	1	9	5	1	—	21
Dupuytren's contraction	—	1	—	—	—	—	—	—	—	1
Neuralgia	—	—	—	—	—	1	1	1	—	3
Totals	38	41	39	53	28	245	70	88	55	657

CARCINOMATA.

Squamous-celled (Epitheliomata) of the Skin.

Very different results are obtained with epitheliomata affecting the glabrous skin as opposed to those involving mucous surfaces.

Epitheliomata of the face, trunk, or extremities, if flat and superficial and accompanied by little or no ulceration, give satisfactory results when treated with quarter or half strength apparatus, screened with 0.2 mm. of lead, the exposures varying from six to twelve hours' duration, spread over a period of three or four days. The retrogression of the growth is quickly brought about and little or no scarring results.

Ulcerating epitheliomata without much subjacent infiltration, require treatment with quarter or half strength apparatus applied unscreened for a total exposure of two to six or eight hours, spread over a period of four or five days, and repeated after an interval of six weeks if necessary. A destructive reaction follows, but the result is usually quite good, and there is but little cicatricial contraction.

Ulcerated epitheliomata with great infiltration, require prolonged treatment with heavily-screened apparatus emitting "ultra-penetrating" rays. Exposures of thirty to sixty hours given during one week, and repeated in five or six weeks' time are best; but if the growth shows signs of rapid extension the borders should be given a vigorous treatment with unscreened apparatus.

CASES.

Epithelioma of Cheek.

M., aged 82 (Case No. 47). The growth began as a small warty nodule six months before the patient was seen at the Radium Institute. It had grown steadily in size until October, 1911, when it was submitted to radium treatment. It was then an oval tumour measuring 2.7 by 2 cm., and projected 0.5 cm. above the surface of the skin. The whole mass was wartlike, with an ulcerated apex, situated over the zygoma, and surrounded by a zone of infiltration. The infiltration reached to the ear; the pre-auricular gland was enlarged and hard. The nature of the disease had been verified by microscopical examination. The patient had refused operation.

He was treated for two hours with a half-strength apparatus screened by aluminium foil 0.01 mm. in thickness, and a similar treatment of one and a half hours was given a month later.

In January, 1912, the patient's medical attendant reported that no sign of the carcinoma remained.

Epithelioma of Right Hand.

M., aged 53 (Case No. 231). The patient's skin had always been peculiarly susceptible to the influence of light. When he was examined in May, 1912, the exposed parts of his body (face and hands) were deeply freckled and had several small warty growths upon them. The condition strongly resembled an early case of xerodermia pigmentosa. Eighteen months previously a small tumour was removed from the back of the patient's right hand, and proved to be carcinomatous on microscopical examination. He came for the treatment of a circular ulcer 1.5 cm. in diameter, with everted edges and indurated base, which had originated at the extremity of the scar of the previous operation. It was situated over the centre of the middle metacarpal bone of the right hand. No pain was associated with the growth.

A full strength apparatus without a metal screen was applied to the ulcer for fifty minutes.

In July the patient reported that there had been a very sharp reaction, but that the ulcer had healed completely and that no sign of the lesion remained.

Epithelioma of Hand.

F., aged 67 (Case No. 5,034). The patient had for ten years a small wart on the back of the right hand. In April, 1911, it commenced to grow rapidly and became very painful. The growth was excised, but recurred, and subsequent treatment with caustics and ointments produced no improvement. In September, 1912, an oval tumour, 3 cm. by 2.5 cm. and 1 cm. in height, was situated on the back of the right hand. Its raised centre was covered by a dry irregular crust. It was immovable, and the site of almost constant severe pain. The axillary glands were not enlarged. The patient refused operation. Seven treatments of two hours each were given with a half-strength apparatus, an interval of one month intervening between the applications. No screen was employed.

The growth steadily improved from the beginning, and in April, 1912, no sign of it remained except a smooth cicatrix.

Epithelioma of Neck and Scalp.

M., aged 65 (Case No. 39). Disease of ten months' duration. Its nature had been determined by microscopical examination.

The patient was first seen on October 10th, 1911. He then had an enormous ulcerated epithelioma extending from a point 2 in. above and behind the tip of the left ear to 3 in. below the mastoid process. There was a deep and wide fissure just behind the ear cleaving the growth in a vertical direction, with which a cavity left by a previous mastoid operation communicated. The whole auricle was greatly swollen and infiltrated with carcinomatous deposit. There was a profuse and offensive purulent discharge. The patient complained of constant and intense pain.

He was treated with 250 mg. of radium, both tubes and flat applicators being used, with screens of silver of 1 mm. and 1.5 mm. respectively, and received in all an exposure of twelve hours on October 10th and 11th. There was a slight reaction about a fortnight afterwards; the ulceration commenced to heal and the pain was considerably lessened.

On October 28th, in compliance with the urgent request of the patient's friends, the injection of Coley's fluid was commenced by the surgeon in charge of the case, and half a minim was injected every second day until December 7th.

Under the action of either the radium or the Coley's fluid, or perhaps the combination of the two remedies, the patient's condition slowly but steadily improved, and when seen on December 12th a remarkable change was apparent.

The greater part of the ulceration had healed, and much of the surrounding carcinomatous infiltration had disappeared. The vertical fissure behind the ear had closed at its lower extremity, was much shallower and covered with epithelium, save for one small ulcerated area at the spot where it communicated with the mastoid cavity. The auricle was much less swollen. Discharge was scanty and non-offensive. During the last four weeks the pain had returned with increasing severity, and the patient desired a further application of radium with the object of relieving the pain. On December 16th and 17th he received a further treatment of twelve hours' duration in all, with 460 mg. of radium screened with 2 mm. of lead.

On January 17th, 1912, his surgeon reported that the wound had completely healed, and that the whole of the previously ulcerated area now presented an almost keloidal appearance. The pain had been much lessened but not entirely abolished. The patient was, however, suffering from vomiting, which was found to be due to acetonuria.

The patient died on February 6th, 1912, from acetonaemia.

EPITHELIOMATA IN RELATION WITH MUCOUS MEMBRANES.

Epitheliomata of the tongue, buccal, gingival, and pharyngeal mucous membranes are almost uniformly disappointing in their ultimate response to radium-therapy.

Temporary improvement is not infrequently seen, and this sometimes goes as far as disappearance of the original lesion; but the treatment has practically no effect in preventing or delaying the appearance of metastatic deposits in the cervical glands and elsewhere.

The rate of growth of the infected glands can often be retarded by the prolonged and persistent use of the "ultra-penetrating" rays. If the dose given be a large one, the glands sometimes break down and discharge a milky-white fluid through a small sinus, and it is remarkable that ulceration of glands thus treated rarely occurs.

Considerable difficulty is experienced in giving satisfactory exposures within the oral cavity, as patients are often unable to tolerate the presence of applicators in their mouth for the necessary length of time, and should the reaction be at all pronounced the congestion of the tissues occasions great discomfort. There is the further danger that a severe reaction may act as a stimulus to the original growth, increase its size, and hasten metastasis.

CASES.

Epithelioma of the Lower Jaw.

M., aged 72 (Case No. 87). A malignant epulis was removed from the right side of the lower jaw of this patient, together with a portion of the mandible, in March, 1911. The microscopic diagnosis was squamous-celled carcinoma. The incision healed well save at one small spot, which closed up under radium treatment. The glands became enlarged on the right side of the neck, and were removed in May, 1911.

A recurrence took place in the jaw at the beginning of November, 1911. Later in the month a small circular nodule, 1.5 cm. in diameter, was evident in the mucous membrane over the lower jaw, immediately to the right of the middle line. It was ulcerated, bled freely when handled, and had a sinus at its centre leading to the bone. The left submaxillary glands were enlarged and hard. A tube of 50 mm. of radium unscreened was placed for two hours in the middle of the growth. In a month the tumour had disappeared, leaving an oozing cavity. The glands of the right side of the neck had much increased in the meantime.

In January, 1912, three half-strength applicators containing 230 mg. radium were placed over the enlarged glands of the right side of the neck with 2 mm. of lead interposed, and an exposure of thirty hours given. In February the enlargement of the glands had made steady progress, but the nodule on the gum had disappeared entirely. The patient died in March, 1912.

Epithelioma of Left Superior Maxilla.

F., aged 69 (Case No. 307). The history of this case was very indefinite, but the first symptom which attracted the patient's attention was a persistent muco-purulent discharge from the left nostril. This was first noted in August, 1912. At the end of September the left nostril was becoming obstructed. She consulted a leading hospital surgeon, who diagnosed a malignant growth in the left superior maxilla, and advised operation, but this the patient refused.

She was seen at the Institute on October 15th, 1912. Transillumination showed great opacity of the left antrum extending up to the orbital margin. The left cheek was much swollen and the left naso-labial fold obliterated. Complete occlusion of the left nostril and slight epiphora were noted. The left half of the palate was pushed downwards, so that the patient was unable to wear her upper dental plate. There was one hard, enlarged gland just below the left mandible.

On the evening of October 15th an incision was made through the mucous membrane over the socket of the first bicuspid in the left upper jaw, and a silver tube, 1 mm. in thickness, containing radium emanation equivalent to 95.6 mg. radium bromide, was inserted into the antrum and left there for twenty-four hours. The patient was again examined on November 5th. The swelling of the cheek was no longer appreciable externally, and the naso-labial fold was distinct. The epiphora had disappeared. She could breathe easily through her left nostril and wear her upper dental plate with comfort. The gland under the left jaw had increased considerably in size and was becoming fixed. Transillumination showed the opacity of the antrum to be much diminished, but still existent.

The treatment was therefore repeated on November 6th. An emanation tube of the initial activity of 114.8 mg. in a screen of 1 mm. silver was inserted into the growth for twenty-four hours.

At the urgent solicitations of her friends the patient consented to have the gland excised a few days later. The gland

was examined microscopically, and the growth found to be a squamous-celled carcinoma.

The patient's doctor reported on December 13th that the patient had no pain or trouble in her face, and was in excellent health.

Epithelioma of the Mucous Membrane of the Right Cheek.

M., aged 68 (Case No. 5,023). In this case three operations had been performed to eradicate an epithelioma of the angle of the mouth on the right side, but after the last operation, in which a piece of the lower jaw had been removed, recurrrence again took place.

When examined, the patient was capable of only very limited movement of the lower jaw. A small ulcerated surface, 1 by 0.5 cm., could be seen far back on the buccal mucous membrane in the angle between the cheek and the mandible. It was hard on palpation and fixed. A large mass of hard immovable glands was present in the right submaxillary and sublingual regions.

The ulcer was treated for three hours with two tubes, each of 25 mg., of radium screened with 1 mm. of lead, and over the glands were placed two full-strength applicators (80 mg.) screened with 2 mm. of lead for six hours on five successive days.

In a month the glands were scarcely palpable and the buccal ulcer was smaller and less indurated. Two similar treatments were repeated, with the result that the ulcer steadily improved. No fresh enlargement of glands took place. The patient died from an unrelated illness.

EPITHELIOMATA OF THE VAGINAL AND UTERINE MUCOSA.

These conditions are more amenable to the action of radium, and some distinctly encouraging results have been obtained.

Small primary growths of the vaginal mucosa unaccompanied by much deep infiltration of the vaginal tissues may be completely eradicated by treatment with full strength or half strength apparatus and an unscreened exposure of one to three hours.

With larger ulcerated and deeply infiltrating growths radium is best applied heavily screened, and with prolonged exposures of from thirty to sixty hours extending over a week or ten days. This frequently checks the rate of growth, heals the ulceration, and lessens the amount of infiltration.

Secondary non-ulcerated deposits in the cellular tissue of the vagina often respond extremely well to treatment with the "ultra-penetrating rays," and in some instances the deposits completely disappear.

CASE.

Epithelioma of Vulva.

In March, 1912, the patient, aged 73 (Case No. 258), had a squamous-celled carcinoma removed from the region of the clitoris. In May it recurred near to the urinary meatus. Further operation was refused.

When she came to the Institute for treatment, there was a hard malignant ulcer, 1.7 cm. in diameter, extending into both labia, and surrounded by a dense zone of infiltration. Its surface bled easily, and it was tender to the touch. On two successive days a tube of 50 mg. of radium was applied for one and a half hours without metal screen. The improvement was marked in a month. The same treatment was then repeated for two hours. Two months later no sign of the growth remained.

CARCINOMA OF THE UTERUS.

In cases of inoperable malignant disease in this situation radium will often bring about results which cannot be attained by any other known method of treatment.

The haemorrhage is arrested, the discharge is diminished in amount and rendered inoffensive in character, the ulceration is healed, and the pain is greatly relieved.

The rate of growth is checked, sometimes completely arrested, and the surrounding infiltration and induration are so much lessened that in a few instances cases previously declared to be inoperable become operable.

The treatment is best carried out by the introduction of a tube containing 50 to 100 mg. of radium, screened with 2 mm. of lead and 3 mm. of rubber into the cervical canal, or, if this be not practicable, into the posterior fornix, a large flat strong applicator screened with 2 mm. of lead being placed on the abdominal wall over the fundus of the uterus. The exposures should be prolonged, and should be from thirty to sixty hours' duration, spread over a period of from five to ten days.

The series of exposures should be repeated at intervals of not less than six weeks.

The action of radium is, however, only local, and though it may, and often does, check the rate of growth, yet in most cases dissemination will sooner or later occur, and the disease spread to parts beyond the effective range of radium.

CASES.

Carcinoma of Uterus.

The patient, aged 63 (Case No. 14), had been married forty years, and had had six pregnancies, the last child being stillborn.

The duration of the disease was three years. The first symptom was a slight vaginal discharge which slowly increased in amount through a period of two years, finally becoming profuse and purulent. In June, 1911, she had a sudden severe haemorrhage followed by others of less degree.

On examination on September 7th, 1911, the cervix uteri was found to be surrounded by a fungating mass which bled when touched, and the vaginal walls were indurated almost to the vulva on the right side and anteriorly. The uterus was enlarged and fixed. The patient complained of pain and a feeling of weight in the lower abdomen, increased frequency of micturition, and an offensive vaginal discharge.

She had one series of treatments for twelve days of sixty-six hours in all, a tube containing 50 mg. in a screen of 2 mm. of lead being inserted daily into the cervical canal for five and a half hours.

Three months later she reported that all the symptoms had so lessened in degree that she could perform all her duties in comfort. Her general health was much improved, and she went to Australia.

Carcinoma of Uterus (Recurrent).

This patient, aged 61 (Case No. 167), had had a subtotal hysterectomy performed fifteen years before coming for treatment, her previous trouble having been increasing menorrhagia for nearly eleven years. She remained well until September, 1910, when she noticed a slight vaginal discharge, which after continuing some months became sanguineous. She consulted a well-known surgeon, who refused to operate, as he found carcinoma of the cervix with implication of the bladder wall. Treatment with *x* rays was begun, and some improvement followed. She was then advised to try radium.

On examination on March 18th, 1912, the cervix uteri was found to be enlarged, hard, and ulcerated. The anterior fornix was obliterated, and the posterior fornix very shallow, the walls of the vagina being much indurated. The growth projected into the rectum about 7 cm. from the anus, but the mucous membrane covering it was normal. The patient complained of sacral pain, constipation, and vaginal haemorrhages, the last of which occurred on any slight exertion.

She had one series of treatments, five days of six hours each, a tube containing 100 mg. of radium screened with 1.5 mm. of lead being placed in the vagina. During four of these sittings an emanation tube, initial activity 73 mg., screened with 2 mm. of lead, was fixed opposite the tumour in the rectum.

Three months later she reported that no haemorrhage had occurred since a week after the treatment ceased. The pain had lessened very much, and the constipation was less troublesome. Her general health was much improved.

Carcinoma of Uterus.

The patient (Case No. 178), aged 56, was perfectly well until within eighteen months of coming for treatment, when she noticed a slight occasional discharge from the vagina. A sudden profuse haemorrhage led to examination in February, 1912, and a leading provincial surgeon pronounced her to be suffering from inoperable carcinoma. The cervix was enlarged, indurated, and ulcerated, and the uterus was fixed. The anterior wall of the vagina was ulcerated, and both the fornices were full and infiltrated. She had frequent uterine haemorrhages and was quite unable to get about.

On March 25th, 1912, an emanation tube, initial activity 85 mg., with a screen of 2 mm. of lead, was passed into the cervix and left in for two periods of eighteen hours, with twenty-four hours' interval. This produced diminution of the induration.

Two months later the cervical canal was dilated and the uterus curetted, and an emanation tube, initial activity 80.5 mg., with a screen of 1.5 mm. of lead, was placed in the cervix for thirteen and a half hours, and after an interval of one day, in the uterus for thirty-two hours.

A month later the os was contracted almost to normal size, and covered with healthy epithelium. There was much less induration. Pain, haemorrhage, and discharge had ceased, and the patient had resumed her usual duties.

Carcinoma of Uterus (Recurrent).

The patient, (Case No. 180), aged 53, had hysterectomy (Wertheim's operation) performed on November 19th, 1911, for carcinoma uteri. She made an excellent recovery, and kept well until the end of February, 1912, when recurrence took place in the upper part of the recto-vaginal septum. The condition was declared to be inoperable.

She was seen on April 1st, 1912. Examination per rectum revealed a definite ridge-like growth stretching transversely across the recto-vaginal septum 5 cm. from the anal orifice.

She was treated with two tubes of radium containing 75 mg., and screened with 1.5 mm. lead, one tube being placed in the rectum and one in the vagina; she had in all twenty hours' treatment—five hours for four consecutive days.

She was examined by her surgeon on June 7th, who reported

that all trace of the growth had disappeared and that the patient looked and felt perfectly well. She wrote at the end of October, 1912, saying she was in excellent health.

Carcinoma of Uterus.

The patient (Case No. 291), aged 62, had no symptoms, save a slight vaginal discharge during the three months before coming for treatment. The appearance of blood in the discharge so alarmed her that she consulted a surgeon in August, 1912, who found inoperable carcinoma of the cervix. The uterus was quite fixed, both rectum and bladder were implicated, and the induration at the right side extended up almost to the iliac vessels. The growth was curetted and the thermo-cautery applied.

The patient received two treatments. A 100-mg. tube in a screen of 1.5 mm. of lead was inserted in the vagina for six hours daily for five consecutive days. This led to slight general improvement, and five weeks later the treatment was repeated, a screen of 2 mm. of lead being used.

Seven weeks later the patient was almost free from pain, the discharge had nearly ceased, and the cervix uteri was covered with healthy epithelium externally. Her general condition was much improved. She expressed her intention to continue the treatment at a later date.

Carcinoma of Uterus (Recurrent).

In this patient (Case No. 5,109), aged 53, the disease was of four years' duration. Hysterectomy (Wertheim) had been performed in July, 1908. The patient made a good recovery and kept well until the end of 1911, when she began to suffer from a purulent vaginal discharge. She again consulted her surgeon, who detected a recurrence (inoperable) and advised radium.

The patient was first seen on February 7th, 1912. The scar at the vaginal roof was healthy. There was a hard, rounded lump the size of a walnut above and a little anterior to the scar on the right side, and there was a similar but smaller swelling the size of a muscat grape just behind the left angle of the scar.

The patient had three series of treatments, the first of ten days' duration in February, six hours each day; the second of five days' duration in April, six hours each day; the third of five days' duration in May, six hours each day; 60 mg. of radium in a screen of 1.5 mm. lead were used throughout.

The nodules of recurrence gradually decreased in size and the discharge ceased.

Her surgeon wrote on June 11th saying that he had examined the patient and that the nodules had completely disappeared. The patient reported herself for examination at the Institute on June 28th. She expressed herself as feeling perfectly well. No trace of the nodules in the vagina could be felt or seen.

Carcinoma of Uterus.

The patient (Case No. 5,037, aged 46) had suffered from intermittent haemorrhages from the vagina for nearly four years, but did not consult a surgeon until six months before coming for treatment on September 8th, 1911. She was then found to have inoperable carcinoma of the cervix. The uterus was fixed and the cervix ragged and ulcerated; induration extended laterally almost to the pelvic wall, and filled up the fornices of the vagina. In the anterior vaginal wall was a hard mass continuous with the cervix, extending to the ostium vaginae. The patient suffered from very severe pain and much discharge.

The first treatment was with a tube containing 60 mg. of radium in a screen of 2 mm. of lead inserted for six hours daily for twelve days. For the first four days a plate containing 40 mg. with a similar screen was placed on the abdomen. This caused a rapid cessation of pain, and a month later the induration and ulceration were appreciably less. A second treatment of five days, six hours each, with a 60 mg. tube and screen of 2 mm. of lead followed; and similar treatments, eleven in all, have been carried out at intervals of about five weeks, a screen of 1.5 mm. being sometimes used instead of 2 mm. As a rule the symptoms increased at the end of the interval, and lessened at once after each treatment. The ulceration returned after the fifth treatment, and the hard mass in the anterior vaginal wall ultimately gave way, leaving a vesical fistula.

The patient is now slowly going downhill, and her general health is failing, but at no time has her pain been as constant and severe as it was before she was treated. It is sixteen months since she first came, and she is still under observation.

Carcinomata of Uterus (Recurrent).

The patient (Case No. 5,199), aged 52, had suffered from occasional haemorrhages for some time before the disease was diagnosed. Abdominal hysterectomy was performed in April, 1909, and four months later two recurrent nodules were removed from the vagina. In the spring of 1912 she noticed some vaginal discharge, and had abdominal pain with occasional vomiting in June.

Examination on June 28th, 1912, revealed a large, hard, movable tumour in the upper abdomen, and in the anterior vaginal wall were two almond-sized swellings which bled when touched, surrounded by much induration. She was very weak and cachectic. She was treated by two 80 mg. plates, with a screen of 2 mm. of lead, placed on the abdomen over the tumour, and a 100-mg. tube in a screen of 2 mm. of lead inserted in the vagina. She did not come back for further treatment as arranged, but on September 16th, 1912, the surgeon wrote to say that all sign of growth in the vagina had disappeared.

Two months later the patient died from intestinal obstruction.

CARCINOMA OF THE RECTUM AND ALIMENTARY CANAL.

Rectum and Intestine.

Radium therapy not infrequently proves of considerable value in the treatment of these carcinomata, but it is extremely difficult to say what are the factors which determine or contribute to the success of the treatment.

Speaking in general terms, the application of radium results in the arrest of haemorrhage, the healing, partial or complete, of any ulcerated surface, a diminution of the amount of the discharge, less pain, and a retardation of the rate of progress.

In some instances more striking changes manifest themselves. The growth shrinks in size, undergoes a fibrous transformation, and becomes much less fixed to the underlying tissues, so that a carcinoma which before radium treatment was regarded as inoperable can be easily and completely removed.

A few patients manifest an unusual degree of susceptibility to radium when applied within the rectum, and a relatively short treatment of eighteen to twenty-four hours with heavily screened radium is followed by a severe though transient proctitis.

The routine method of treatment in rectal cases is the introduction—through an operating sigmoidoscope, if necessary—of 50 to 100 mg. of radium screened in 2 mm. of lead and 3 mm. of rubber. It is maintained in position by a stem of soft silver wire, which is bent at an acute angle at the anal orifice, and fastened by strapping and a T bandage in the fold between the buttocks. Each exposure is from six to twelve hours in duration, and is repeated daily until a total treatment of thirty to sixty hours has been given. The series should be repeated after an interval of six weeks.

CASES.

Carcinoma of Rectum.

The patient (Case No. 35), M., aged 53, on account of severe rectal haemorrhage, sought the advice of a leading London surgeon; he diagnosed carcinoma of the rectum, but refused to operate, and suggested radium.

When first seen, on October 9th, 1911, there was a craggy, hard, annular ulcerated growth, the lower margin of which was 3 cm. from the anal orifice, while the upper margin was 9 cm. above the orifice. It was moderately fixed, its chief attachment being posteriorly. It bled on examination.

The patient was treated with a tube of 60 mg. radium screened with 2 mm. of lead, and received an exposure of sixty hours' duration, spaced over ten days.

He was examined six weeks later; the growth was found to be much reduced in size, and no longer ulcerated. It was much less fixed to surrounding tissues.

He was examined by his surgeon again on December 6th, who declared the condition to be so greatly improved that it was quite operable, and performed Kraske's operation.

On March 4th, 1912, the patient returned to the Institute for a course of prophylactic irradiation, and received thirty hours' treatment with 60 mg. of radium screened with 2 mm. lead.

He reported himself on June 18th, 1912, as being perfectly well and in excellent general health. No sign of recurrence could be detected after a most thorough examination.

Carcinoma of Rectum.

In this case (No. 48), M., aged 61, there was a six months' history of alternating diarrhoea and constipation. Immediately before coming to the Radium Institute he had been examined by a well-known surgeon, who declared him to be suffering from an inoperable carcinoma of the rectum.

The patient complained of "pressure" in the rectum, with difficulty in defaecation, and the passage of a mucoid discharge. No bleeding had taken place. On rectal examination a growth could be felt 5 cm. above the anus. It was firmly fixed, annular, and ulcerated, and affected chiefly the anterior wall of the rectum. The lumen of the growth admitted the tip of the little finger. Fifty mg. of radium in a tube, covered by a screen of 2 mm. of lead, were applied in the lumen of the growth for six hours a day for ten days.

A month later considerable improvement was noted. The growth was much smaller and covered with smooth intact mucous membrane. Above the stricture could be felt one or two nodules. Treatment as before was repeated for five days.

Five months later no infiltrating growth could be felt, and only what was apparently an easily dilatable fibrous stricture remained.

Carcinoma of Rectum.

The patient (Case No. 108), M., aged 55, was first seen on December 15th, 1911, and found to be suffering from recurrent carcinoma on the posterior wall of the rectum, which had appeared five years after a Kraske's operation. Colotomy had been performed on November 24th, 1911.

The rectal opening was close to the sacrum, and extremely contracted by malignant infiltration, so that no digital examination could be made. One or two nodules were visible at the

posterior border of the orifice of the bowel. The patient complained of much persistent pain in the rectum and left thigh and of frequent bleeding.

The first treatment consisted of thirty hours' application in the rectum of a 50 mg. tube of radium in a screen of 1.5 mm. of lead.

Two months later the patient felt better; all haemorrhage had ceased, the pain had nearly disappeared, and the induration round the anus was much less.

The patient remained in this condition for some months, but the bleeding and pain reappeared, a rectal discharge developed, and the buttocks on either side of the anus became infiltrated. The patient was treated with the same tube three times, but in May, September, and November, 1912, flat half-strength applicators containing 180 mg. radium were screened with 2 mm. of lead and placed over the infiltrated buttocks. This resulted in considerable improvement. The induration appreciably diminished, the discharge became less, the pain was alleviated.

The patient's general condition is good. He attends business at his office. He is still under treatment.

Carcinoma of Rectum.

This patient (Case No. 117), M., aged 68, who was the subject of advanced mitral disease, had suffered from persistent diarrhoea for six months. He was examined by a leading provincial surgeon, who diagnosed carcinoma of the rectum, but considered operation inadvisable by reason of the patient's age and ill health.

He was first seen on December 29th, 1911. Sigmoidoscopic examination revealed a flat hard carcinomatous plaque ulcerated at its upper part. It was confined principally to the posterior rectal wall, and its lower border was 16 cm. from the anal orifice. The patient experienced constant pain, which was very severe on defaecation.

He was treated by inserting a tube of 50 mg. of radium screened by 2 mm. of lead into the lumen of the bowel and received an exposure of thirty hours' duration, spread over five days.

Following the treatment the patient slept well, ate well, the diarrhoea ceased, and all pain disappeared. Seven months later he died, but his medical attendant stated that the freedom from pain persisted right up to the day of his death.

Carcinoma of Rectum.

This patient (Case No. 185), F., aged 56, was seen in April, 1912. She had an indefinite history of abdominal pain and obstinate constipation. A surgeon examined her and declared her to be suffering from an inoperable carcinoma of the rectum.

Examination revealed a hard annular growth of the bowel 16 cm. above the anus. It was slightly ulcerated anteriorly, bled readily on examination, and invaded the surrounding tissues. The lumen was very small and irregular, the size of a crow quill, and a very offensive discharge was continuously present. There was constant rectal pain. The patient was very weak and emaciated.

On April 3rd, 1912, an emanation tube, initial activity 83 mg., screened with 1.5 mm. of lead, was placed in the lumen of the growth and left there for twenty-four hours. Six weeks later a severe reaction was reported, but afterwards the patient's health improved much, the discharge ceased to be offensive and the pain was only slight. The lumen of the bowel was much larger and the ulceration had disappeared.

On June 5th the patient was again treated with an emanation tube, initial activity 63.2 mg., placed in a screen of 2 mm. of lead, and an exposure of twenty-four hours was given. In October the patient had no discharge and no pain, was having natural actions of the bowel, attending to her household duties, and improving much in general health. She had gained nearly 2 st. in weight. She declined examination on the ground that she was perfectly well.

Carcinoma of Rectum.

This patient (Case No. 5,088), M., aged 37, had suffered from tenesmus and the passage of blood-stained mucus from July, 1910. He steadily became worse. In July, 1911, inoperable carcinoma of the rectum was diagnosed and the nature of the growth verified microscopically. A month later colotomy was performed.

In December, 1911, the patient was examined at the Radium Institute. He was in constant pain, had much bleeding and discharge, and was thin, worn, and anxious. On rectal examination an annular growth could be felt 2.5 cm. from the anus. It was hard, craggy, ulcerated, and firmly fixed. The lumen was small and tortuous.

Treatment consisted of the insertion of a tube, containing 60 mg. of radium screened by 2 mm. of lead, into the lumen of the growth for periods of six hours for five days. This was repeated five weeks later, and in March, 1912, the patient's weight had increased. He slept well, and the discharge was much diminished. The pain had gone. The growth was still large and hard, but the ulceration had disappeared. The same treatment was then given for four days.

In November, 1912, the patient again presented himself for examination. He looked in good health and had been doing four hours a day of manual labour. During the last few weeks he had some return of pain. The growth was harder and smaller. Treatment is being continued.

CARCINOMA OF THE STOMACH.

A few inoperable cases of cancer of the stomach have been treated by radium, not in the hope of cure, but with the object of checking the growth and alleviating the symptoms.

Some slight degree of benefit has resulted from the application of powerful apparatus screened with 2 mm. of lead over the gastric region, the pain being lessened, the frequency of vomiting decreased, and the general health improved.

CARCINOMA OF THE BREAST.

The results of radium therapy in the treatment of cancer of the breast are, on the whole, encouraging, and this is especially the case when the primary growth is of the sclerotic rather than of the medullary type, when the secondary deposits occur in the skin lymphatics and lymphatic glands, and there are no internal metastases.

Radium should never be used as a substitute for operative interference, but when the case is inoperable it will do much to relieve pain, promote the healing of ulcerated surfaces, and check the growth of the secondary deposits. In not a few cases it will bring about the almost complete absorption of superficial carcinomatous nodules and infected glands. Instances have been noted in which the physical signs were strongly suggestive, if not positively indicative, of carcinomatous deposits in the lungs, and the prolonged application of from thirty to forty hours of a large quantity of radium screened through 2 mm. of lead has brought about an apparent resolution. In rapidly growing cancers of the encephaloid type radium can do little but relieve pain. The post-operative lymphatic engorgement of the arm on the affected side is sometimes distinctly benefited by the application of a heavily screened tube of 50 to 100 mg. of radium placed at the apex of the axillary cavity, an exposure of twenty-four to thirty hours spread over five days being given.

CASES.

Carcinoma of Breast.

In this case (No. 89), F., aged 46, the disease had existed for five years before the patient consulted a surgeon. The condition was then quite inoperable.

In December, 1911, she came for treatment. The right breast was densely indurated, firmly fixed, and surmounted by a superficial ulcer 6 by 4.5 cm. in area, which had completely destroyed the nipple. The right axillary, supraclavicular, and infraclavicular glands were all enlarged and hard. She complained of a cough and pain in the right side of the chest, where the expansion was relatively much diminished. She had also pain in the right arm, and the movements of the shoulder-joint were much restricted.

The first treatment consisted in placing a half-strength plate containing 50 mg. of radium over the ulcer, with a 30 mg. tube in the axilla. The screening was 2 mm. of lead; the exposure was six hours daily for five consecutive days. This produced a local improvement, but at the end of January her respiration was much embarrassed and the cough much more troublesome.

In February a second treatment was given, the screening and time being exactly the same as at first, the apparatus employed being two quarter-strength plates containing 40 and 70 mg., two full-strength plates containing 30 mg. each placed directly over lesions, and a tube of 30 mg. in the axilla. This was followed by local and general improvement.

In April, during a third treatment, a half-strength plate containing 150 mg. was also used, with the view of acting on the implicated pleura and lung tissue.

In May the air entry to the lung was free, the pain and cough were gone, and the induration of the breast was much less. A fourth treatment was then given, resembling the third, and in July the ulcer had healed completely, the induration was almost gone, and all the glands were smaller. Unmistakable signs, however, pointed to an extension of disease within the chest below the axilla, and a fifth treatment was undergone.

In September the superficial lesions were all negligible, but the dullness below the right axilla had increased, and respiration was hurried and embarrassed, the patient having to use oxygen. She then had a sixth similar treatment, and at the end of November was feeling better and breathing more comfortably, whilst the physical signs were no worse. She is to come again early in 1913.

Carcinoma of Right Breast (Recurrent).

In March, 1910, the patient's right breast and right axillary glands (Case 129, F., aged 52) were removed for carcinoma, and a recurrence which appeared in August, 1911, was not shown to the surgeon till the end of the year, when the condition was inoperable.

In January the patient came for treatment with many nodules and a diffuse induration around the operation scar, the latter extending to both folds of the axilla. The right supraclavicular and infraclavicular glands were enlarged, hard, and fixed. At

the centre of the scar was an ulcer 2 cm. in diameter. The left breast was hard, and some glands could be felt in the left axilla.

She was treated with a 30 mg. tube in each axilla, and five flat applicators containing 200 mg. of radium placed directly over the affected parts. The screening was 2 mm. of lead throughout, and the period of exposure six hours daily for five consecutive days.

Two months later the ulceration had healed, and all the enlarged glands, as well as the mass in the left breast, were reduced in size. The induration was less, except in the anterior axillary fold, where it had increased slightly.

A second similar treatment, using only 180 mg. radium, was then given.

Later in the year the medical attendant reported that the condition was quiescent, that the patient was feeling very well, and attending to all her duties.

Carcinoma of Right Breast (Recurrent).

The patient (Case No. 151), F., aged 64, had the left breast removed and the axilla cleared in June, 1911, for carcinoma. In February, 1912, some progressive induration appeared at the upper end of the scar incision, and the left arm began to swell.

She was treated by three applicators containing 130 mg. of radium and a tube of 30 mg. placed in the axilla. The screens were 2 mm. of lead throughout, and the duration of exposure six hours daily for five consecutive days. By the end of April much of the induration had disappeared and the swelling of the arm was greatly reduced.

A second treatment by one 30 mg. applicator and the 30 mg. tube was repeated with the same screen and exposure.

The patient was seen last in November. There was then no induration perceptible, the swelling of the arm had disappeared, and her health was excellent.

Carcinoma of Left Breast (Recurrent).

The patient (Case No. 191), F., aged 49, had the left breast and left axillary and supraclavicular glands removed in July, 1907. A recurrent nodule was excised from the scar in November, 1909. A second recurrence early in 1912 was considered inoperable.

When she came for treatment in April a nodule of 1.5 cm. diameter was adherent to left fifth rib, the overlying skin being ulcerated, and the tissues over the fifth and sixth costal cartilages were much indurated. Some small hard glands were left behind the left sterno-mastoid. She was losing weight.

Applicators containing 160 mg. with a tube of 60 mg. radium were applied for six hours daily for five consecutive days, all screens being 2 mm. of lead. Six weeks later the nodule had disappeared, the glands and induration were less, and she had gained in weight.

After a further six weeks fresh induration appeared over the third and fourth left costal cartilages, and there was considerable dyspnoea on exertion. Applicators containing 300 mg. and a tube of 60 mg. of radium were applied, time and screens being as before. Three months later all the induration had disappeared and the glands were as small as swan shot; there was no longer any dyspnoea.

In October a gland was discovered at the apex of the axilla with some redness over the fifth rib. She was again treated for the same period as before, with the same screens, with applicators containing 300 mg. She is still under treatment, steadily improving in general health, and gaining weight.

Carcinoma of Right Breast.

In this case (No. 295), F., aged 55, the disease had existed for one year before the patient consulted her medical attendant in September, 1912. The whole of the right breast was then indurated and firmly fixed to the underlying tissues, and in the upper and outer quadrant was a rounded mass of 6 cm. in diameter, bright red in colour, and ulcerated. On the inner side of this and extending to the edge of the sternum was a leather-like area of "cancer en cuirasse," while numerous small nodules could be felt at the lower border of the breast. In the right axilla, supraclavicular fossa, and posterior cervical triangle enlarged glands were felt. The patient complained of excessive pain.

A tube of 30 mg. was placed in the axilla and three half-strength plates, containing 50, 80, and 150 mg., applied over breast and glands. The screening was 2 mm. lead, and the exposure five consecutive days of six hours each.

Two months later the mass on the breast was much reduced in size and the ulcer had healed. The infiltrated area by the sternum had become quite soft, and the glands and affected areas were smaller. The pain was quite gone and the patient had gained in weight.

The same treatment was given a second time, and the improvement continued. She is still under treatment.

Carcinoma of Right Breast (Recurrent).

In this case (No. 5,100) F., aged 60, the disease was of five years' duration. An operation had been performed by a leading hospital surgeon in January, 1906, when the breast was removed and the axilla cleared. Recurrence took place in June, 1910, with several small nodules arranged in the form of a circle 6 cm. in diameter, having its centre at the middle of the breast incision. These nodules were treated with *x* rays for some time, but steadily increased in size.

The patient was first seen on February 1st, 1912. She then had six hard nodules arranged as above described, each the size of a small walnut and very tender on pressure.

She was given two series of treatments, with half-strength applicators screened with 2 mm. lead—the first of five days' duration, six hours each day, February 1st to 7th; the second of five days' duration, six hours each day, April 22nd to 26th. The nodules steadily decreased in size and the tenderness disappeared.

She came for examination on June 4th. All the nodules had gone. There was no longer any tenderness, and she was in excellent general health. She was afterwards seen by the surgeon who operated on her, who expressed his great satisfaction at the result of the radium treatment.

Carcinoma of Breast (Left).

In Case No. 5,216, M., aged 72, the duration of disease was about three years. The nipple of the left breast became hardened and retracted, and finally ulcerated. The patient was not considered a suitable subject for operation.

Examination revealed an oval tumour of 5 cm. diameter surmounted by an indurated ulcer 1.7 by 1.3 cm., which occupied the site of the nipple. In the skin towards the inner side five hard nodules could be felt.

He was treated in July, 1912, with applicators containing 110 mg. of radium with screens of 2 mm. of lead. Over the ulcer a screen of only 1 mm. of lead was used. The time of exposure was five hours daily for five consecutive days.

In September, 1912, the ulcer was smaller and the swelling less. A fresh treatment for a similar period was carried out, the screens being 1.5 mm. of lead and applicators containing 190 mg. of radium being used for the same time as previously.

In October the ulcer was much softer, and a similar treatment was carried out. In November the tumour had disappeared, the ulcer was healed over, and the nodules were scarcely perceptible. The patient is still under treatment.

Carcinoma of Right Breast (Recurrent).

This patient (Case No. 5,008), F., aged 53, came in August, 1911, for treatment of some small hard nodules in and below the right axilla. The right breast had been removed with the glands of the right axilla in June, 1904, and two earlier local recurrences had been excised in 1908 and 1910. She had much pain in the axilla and right arm, and was taking morphine.

Screens of 2 mm. of lead were used throughout. The nodules were treated with an applicator containing 30 mg. of radium daily for three hours on four consecutive days.

Three weeks later these nodules had disappeared, and the pain was quite gone. Some fresh nodules, however, could now be felt just below the clavicle; the same apparatus was used again for three hours daily for four consecutive days in September, and again for three hours daily for seven days in October. In December she wrote saying all the nodules had disappeared, and she had no pain.

In April, 1912, some thickening appeared in the scar in two places, and a nodule was found at the posterior border of the right sterno-mastoid. Applicators containing 110 mg. were used, with a 50 mg. tube in the axilla, all being applied for six hours daily on five consecutive days. An applicator of 40 mg. was put over the nodule on the sterno-mastoid for the same period; it became much smaller, and the induration disappeared.

In September the patient came again with pain in the arm, stiffness of the shoulder, dyspnoea, and thickening in the anterior axillary fold. She was weak and very thin. A tube of 60 mg. and applicators were again used as before for six hours on four consecutive days, and a month later a similar treatment with somewhat larger apparatus was carried out. Eight weeks after this the dyspnoea had become less, the pain was gone, and the patient could move her arm freely again. She is still under treatment.

Paget's Disease.

Two patients afflicted with this condition have been treated with radium.

The first, an unmarried woman of 35, had a patent urachus, and the disease had commenced at the umbilicus. It readily yielded to radium, and an apparent cure was effected.

The second, a married woman aged 58, had the left breast affected. She came under treatment quite recently, but a very great improvement has already been brought about, though the case is not yet finished.

In both instances treatment was carried out with a quarter strength applicator, unscreened, and an exposure of one and a half hours' duration.

Cases.

Paget's Disease of Umbilicus.

The disease (Case No. 5,010, F., aged 35) was of three years' duration. It had been subjected to a variety of treatments without effect, and was slowly but steadily increasing in size.

The patient was first seen on August 21st, 1911. There was then a roughly circular patch 5.5 cm. in diameter, with its centre at the umbilicus, covered with a flaky, yellowish crust, which, when detached, left a reddish, slightly ulcerated surface underneath. There was no bleeding, no infiltration, and no rolled edge. The diagnosis of Paget's disease had been made by a leading dermatologist. The patient had a patent urachus.

A quarter strength applicator of sufficient size to cover the lesion completely was applied without screen for one and a half hours on August 21st, 1912.

She was examined on September 13th. There had been a fairly vigorous reaction. The inner portion of the ulcer nearest to the umbilicus was covered with new healthy epithelium, but the outer portion was still red and inflamed. She came again a fortnight later, when the lesion was found to be completely healed.

A slight recurrence took place early in September, 1912. The same treatment was adopted with an equally good result. The patient has since kept perfectly well.

CARCINOMA OF THYROID.

In Case No. 5,127, F., aged 35, the disease was of six months' duration. The symptoms were cough with occasional haemoptysis, dysphagia, and dyspnoea; marked stridor accompanied any exertion or excitement. She consulted a leading hospital surgeon in March, 1912, who diagnosed carcinoma of the thyroid (inoperable), and advised radium.

She was first seen on March 26th, 1912. Examination showed distinct enlargement and hardness of the thyroid, most marked inferiorly. The percussion note was impaired over the apex of the right lung, and vocal resonance and fremitus were increased in the same area. *X*-ray screening showed a faint shadow just below the inner end of the right clavicle.

The patient had three series of treatments with half-strength apparatus containing 120 mg. radium screened with 2 mm. lead. The first, of four days, six hours each day (March 27th to 30th); the second, of five days, six hours each day (April 29th to May 3rd); the third, of five days, six hours each day (June 3rd to 7th).

She reported herself for examination on September 23rd, 1912. The enlargement and hardness of the thyroid had disappeared. Her general condition was good, and she had gained weight. She no longer had any dysphagia and experienced only a very slight degree of dyspnoea on great exertion. There was no stridor. The physical signs at the apex of the right lung were unaltered.

The patient has returned to her work as schoolmistress, but still reports herself every two months. No further treatment has been necessary.

RODENT ULCER.

This is of all forms of malignant disease the one which is most amenable to the action of radium. Untreated rodent ulcers not exceeding 2 cm. in diameter, and not affecting mucous membrane, cartilage, or bone, almost invariably yield to one exposure of one to three hours' duration with a full-strength applicator unscreened.

If the ulcer occupy a large superficial area—say, 20 sq. cm. and upwards—an unscreened application over the whole area at the same time is inadvisable in view of the severe systemic disturbance which would follow such a procedure, and the lesion should be treated by two, three, or four applications made in rotation to different parts of its surface, at intervals of three weeks or a month.

When a mucous membrane is affected rodent ulcers prove much more refractory, though exception should perhaps be made in regard to the palpebral mucosa, as small rodent ulcers in this situation often respond well to exposures of strong unscreened apparatus of fifteen to twenty minutes' duration given consecutively for three days.

If the rodent ulcer has attacked bone or cartilage, great care must be exercised not to give too heavy an exposure, or a very acute, painful, and prolonged inflammation may be produced.

When the extent, position, or character of the ulcer precludes the possibility of strong unscreened exposures, the best results will probably be attained by prolonged exposures with heavily-screened apparatus using the "ultra-penetrating" rays only. This method is followed by little or no active inflammatory change, and, in addition, often alleviates the pain of the ulcer in a very definite manner. The action of radium in these cases can be greatly aided by judicious skin grafting as soon as the base of the ulcer has assumed a healthy appearance.

Many of those ulcers which have received treatment extending over a period of many years with *x* rays, zinc ionization, CO_2, etc., respond badly to radium treatment, and it is unwise to attempt to make any pronouncement as to the probable result. Quite frequently the previously treated tissues break down to an extent which far exceeds the existing ulceration, and repair is very slow and imperfect.

More than half of the cases of rodent ulcer which applied for treatment at the Radium Institute during the past year were of this character, and the destruction of tissue was so great that no hope of satisfactory repair could be entertained.

CASES.

Rodent Ulcer of the Back.

In Case No. 102, F., aged 53, the disease was of twenty-five years' duration. All kinds of treatment had proved ineffective, and during the last three years the ulcer had steadily grown larger.

The patient was first seen on December 12th, 1911. There was a flat, roughly oval, shallow ulcer in the right lumbar region, measuring 4.2 by 2.7 cm. The patient was given one treatment with a half-strength applicator containing 70 mg. of radium, unscreened, for one and a half hours, on December 29th, 1911.

She reported herself for examination on February 2nd, 1912, when the ulcer was found to be almost healed and to measure only 2.6 by 1.3 cm. No further treatment was given, but the patient was asked to come again in two months.

She returned on May 14th, 1912, when the ulcer was seen to be completely healed.

Rodent Ulcer.

The patient (Case No. 66), M., aged 59, had an oval ulcer measuring 1.5 by 1 cm. situated just below the inner canthus of the left eye. It had begun two and a half years before and was steadily increasing in size.

A full-strength applicator was placed in contact with the lesion, without a screen, for two hours on November 9th, 1911. On February 24th, 1912, nothing of the lesion remained. In September a nodule the size of a millet seed appeared at the site of the former lesion. This was again treated as before and after a few weeks nothing save a faint scar was left.

Rodent Ulcer.

The patient (Case No. 133), M., aged 75, had been treated during three years by zinc ionization, carbon dioxide snow and radium, with temporary success, for a small rodent ulcer on the right ala nasi. Each new treatment had brought about an apparent cure, but recurrence took place within two months. On January 24th, 1912, a full strength applicator was placed in contact with the ulcer without a screen for one and a half hours. The reaction was slow, but by April nothing remained of the lesion but a small white depressed scar. There has been no trace of recurrence.

Rodent Ulcer of Ala Nasi.

In Case No. 175, M., aged 65, the disease was of three years' duration. He had been treated with *x* rays, high frequency, fulguration, and thoradin, but without any good result.

He was seen and treated on March 27th, 1912. He then had an almost circular ulcer, 1.3 by 1.4 cm., on the centre of the right ala nasi. The floor of the ulcer was very thin, being composed of but little more than nasal mucous membrane. The edge of the ulcer was much infiltrated, especially at its upper part. He was given one treatment with a full-strength apparatus applied for fifty minutes to the floor, and one and a half hours to the edge of the ulcer.

He was examined on May 23rd, 1912, when the ulcer was found to have healed perfectly, and to be covered with a smooth and supple cicatrix.

The patient, who lives in Canada, wrote at the end of August saying there was no sign of recurrence.

Rodent Ulcer.

Case No. 242, male, aged 49, had had a rodent ulcer on the left side of his neck for eighteen years. It had been treated by many applications of *x* rays, and three times by excision, but never healed completely.

When he came to have radium applied in June there was an ulcerated area of 10 by 7 cm. on the side of the neck. The whole of the area was covered by half-strength applicators with screens of $\frac{1}{2}$ mm. of lead, for four hours on each of four consecutive days. This treatment was repeated three weeks later. The upper part of the ulcer rapidly healed, while the edges became much thinner. Two similar treatments were given at longer intervals, and the physician reported towards the end of the year that the ulcer was nearly healed, and that the patient had left England.

Rodent Ulcer.

This patient (Case No. 5,137), F., aged 69, had been treated through nine years by many methods, including the cautery, carbon dioxide snow, and *x* rays, but never with complete success.

When she came she had an ulcer with raised margin measuring 2 by 1 cm., situated close to the inner canthus of the right eye. A half-strength applicator was placed over the ulcer without any screen for one and a half hours on May 1st.

On June 12th the ulcer had healed, but a nodule remained close to the inner canthus. This was treated by a small full-strength applicator, applied for one and a half hours without a screen; the nodule subsequently broke down. When the wound healed in July there was a smooth, soft, healthy scar.

Rodent Ulcer.

The patient (Case No. 5,044), F., aged 50, had a circular ulcer of 1.8 cm. diameter situated high up on the left cheek. It was of four years' duration and had recently increased in size more rapidly. She had had no previous treatment excepting with ointments.

On September 16th, 1911, a half-strength apparatus was placed directly over the ulcer for one and a half hours. On October 27th following she came to show herself, and a smooth white scar occupied the site of the former ulcer.

Rodent Ulcer.

Case No. 5,227, M., aged 60, when seen had a roughly circular lesion 2 cm. in diameter on the left eyebrow. It had existed for sixteen years in spite of treatment with lotions and ionization. The base was indurated, the margin was thick and irregular, and the floor red and tender.

A full strength applicator was put on the growth for one and a half hours without any screen on July 27th, 1912. The ulcer rapidly cleared up, and the induration slowly disappeared. When seen in November there was a perfectly smooth, healthy scar.

SARCOMATA.

Whenever possible sarcomata are best treated by the insertion into their centre of a tube containing 50 to 100 mg. of radium, with a screen of 0.5 or 1 mm. of silver; it is left in position for twenty or thirty hours; the application is repeated after a month.

This frequently proves most effective; the tumour steadily shrinks in size, and becomes replaced by a dense fibrous nodule which shows little or no tendency to grow.

If this method be impracticable, prolonged exposures with flat applicators screened with 1 or 2 mm. of lead, and placed so as to cover as great an extent of the growth as possible, and to produce a "cross-fire" action of the rays, will often do much to check the growth; but this procedure is not nearly so promising as the preceding one. In either case it is essential to give as vigorous a treatment as possible, as the great vascularity of these growths, and their rapid and wide dissemination by the blood stream, are factors which militate very strongly against the chances of success.

Cases.

Sarcoma of Superior Maxilla.

The patient (Case No. 148), M., aged 72, was first seen on February 20th, 1912, when the disease was stated to be of three months' duration. The growth was rapidly increasing.

Little or no alteration in the size of the maxilla was appreciable externally, but there was marked bulging downwards of the left half of the hard palate, and the left nostril was occluded by the pushing of the antral wall over to the nasal septum. The patient had epiphora and diplopia.

On February 20th an emanation tube (initial activity 44.5 mg.) in a screen of 1 mm. of lead was inserted into the growth, and left there for twenty-four hours. A portion of the growth was removed at the time of operation and submitted to microscopical examination. It proved to be round-celled sarcoma.

The patient was examined on April 25th. The bulging on the left half of the palate was much less, and the left nostril was no longer occluded. There was no diplopia and no epiphora. Transillumination, however, showed that there was still some abnormal opacity of the left antrum, and the patient was advised to have a second treatment.

On April 26th an emanation tube (initial activity 30 mg.) in a screen of 1 mm. of lead was inserted into the antral cavity and left there for twenty-four hours.

The patient's doctor wrote on July 20th, 1912: "I have again seen our patient, and he is wonderfully well. There is nothing in the nostril now, nor is there any pain. The swelling in the mouth has gone. His general condition is excellent."

Sarcoma of Pharynx.

At the beginning of 1912 the patient (Case No. 232), M., aged 56, experienced a choking sensation at night with a sharp pain in his neck. He consulted a surgeon, who found a swelling in the posterior pharyngeal wall, and, after a biopsy which showed the growth to be a sarcoma, excised the tumour, cutting down to the bone, which was found to be roughened. After this the patient's neck remained very painful and stiff, and, though it improved with massage, it still caused great suffering and inconvenience. Shortly after the operation a mass of granulation tissue in the posterior pharyngeal wall was treated with the cautery, but the wound never healed and there was continuous suppuration.

When seen on May 29th, 1912, the posterior pharyngeal wall was bulging forward. A rectangular area of ulceration, measuring 3 by 1.5 cm., covered with granulations, was situated on the centre of the prominence, with pus exuding from its lower end. Deep palpation behind the angles of the jaw revealed a swelling, more marked on the right side. The patient was very weak, had considerable dysphagia, and suffered from constant pain in his neck. The first treatment lasted through five consecutive days. Three applicators, containing 310 mg. of radium screened with 2 mm. of lead, were fastened externally below and behind the angles of the jaw, so as to cross-fire the affected areas. This was done five hours daily for five consecutive days. The exact situation was altered slightly from day to day. A small circular applicator, containing 30 mg. of radium screened with 1 mm. of silver and arranged with a thick lead case to protect the mouth, was held by a silver wire against the ulcer for an hour each day. Before this treatment had been completed the patient reported that he had been able to sleep well for the first time for many months.

On July 16th he came to be treated again. He had then no pain or dysphagia. The suppuration had ceased and the pharyngeal ulceration had completely healed. The swelling in the pharynx was reduced to an oval prominence about 3 cm. long, and no definite tumour could be detected by external palpation. The patient was back at his ordinary work and feeling well. The treatment was then repeated, and the patient returned to his home. He has not reported since.

Lympho-sarcoma of Neck.

In Case No. 50, M., aged 41, the disease commenced in December, 1910, as a growth just below the right mastoid. An operation was performed in April, 1911; the growth on microscopical examination proved to be sarcoma. It recurred in June, 1911, and a second operation was performed on August 14th, 1911. There was recurrence again in September, 1911. The patient then consulted a leading hospital surgeon, who declared the condition to be inoperable and suggested radium.

The patient was first seen on October 24th, 1911. There was an oval swelling at the level of the angle of the jaw behind and below the right ear. It measured 6.5 by 4 by 1.3 cm.; it was hard and firmly fixed to the underlying tissues. The skin over its most prominent part was glazed and hyperaemic. The growth was the seat of occasional severe lancinating pains.

He had fourteen treatments between October 24th, 1911, and January 16th, 1912, with full-strength applicators containing 260 mg. radium screened with 2 mm. of lead. The growth steadily decreased in size and all pain disappeared.

When examined on February 16th, 1912, no trace of the growth could be found, and the patient expressed himself as feeling quite well.

He was seen again on June 29th, 1912. He was then in perfect health and had gained 9 lb. in weight.

Sarcoma of Thigh.

The patient (Case No. 211), M., aged 18, had an injury to the right thigh at the junction of the middle and lower thirds in March, 1912, and shortly afterwards an increasing swelling appeared at the site of the injury. The tumour was smooth and oval, with ill-defined edges, and slightly tender on pressure. Careful examination led an eminent surgeon to pronounce it to be periosteal sarcoma, and he advised operation, but the patient refused to submit.

On May 10th, 1912, an emanation tube with initial activity equivalent to 100 mg. of radium bromide, in a screen of 1 mm. of lead, was embedded in the tumour and left for twenty-four hours. A portion of the growth was removed at the time of the operation, and microscopical examination showed it to be spindle-celled sarcoma. Seven weeks later an emanation tube of initial activity equivalent to 75 mg., in a 1 mm. lead screen, was inserted for twenty-four hours. After the first treatment the tumour ceased to enlarge, after the second it became somewhat smaller, and the patient was able to walk with comparative ease.

The surgeon reported in November that no signs of dissemination had made their appearance, and that the original tumour was not causing the patient any trouble whatsoever.

NAEVI.

Flat Superficial Naevi, Capillary Naevi—"Port-Wine" Stains.

These are the most difficult of all naevi to treat, and much care and patience must be exercised in order to bring about a satisfactory result.

The factor of personal idiosyncrasy is always prominent, and it is exceedingly difficult to lay down any definite rules as to strength and duration of exposure. It is best to proceed with great caution, giving a short, unscreened exposure, and if necessary gradually increasing the same until a satisfactory reaction has been obtained. As a general rule, apparatus of quarter or half strength should be used, the screening should not exceed 0.02 mm. aluminium, and the exposures should range from ten to sixty minutes' duration.

The best results can be looked for when the naevus is quite superficial, and shows no tendency to infiltration. If much infiltration exist the treatment will have to be much more vigorous, and a destructive reaction of slight degree produced. A smooth, supple, and white scar will be left.

Cases.

Capillary Naevus.

In Case No. 174, F., aged 19, the naevus was congenital; it was roughly circular, dark, plum-coloured, and about 3 cm. in diameter. It was situate in the centre of the right cheek. No previous treatment had been tried. On March 27th, 1911, a half-strength applicator screened with 0.01 mm. of aluminium was placed in contact with the naevus for forty minutes. A fair reaction followed.

On May 9th a quarter-strength applicator with the same screen was used for one hour. On June 20th the first treatment

was repeated. The patient was seen in September, when the naevus was so light in colour as to be scarcely noticeable, and the overlying skin was perfectly smooth.

Capillary Naevus.

The patient (Case No. 229), F., aged 4 months, was brought on May 29th, 1912, with a raised blue circular naevus 2 cm. in diameter over the middle of the left parietal bone. A full-strength apparatus screened with 0.04 mm. aluminium was applied to cover the lesion for seventeen minutes.

When seen a month later only the posterior margin remained discoloured, and the patient was treated with a half-strength applicator, screened as before, for twenty minutes.

On September 13th the naevus had almost disappeared, the tissues felt normal, and the hair was covering the slightly red area which remained.

Capillary Naevus.

The patient (Case No. 5,040), F., aged 16, came on September 11th, 1911, for treatment of a very disfiguring purple superficial naevus occupying the upper half of the left cheek. It dated from birth, and electrolysis and other treatment had brought about very little improvement. It was treated, a portion at a time, with a large quarter-strength or smaller half-strength applicators screened with 0.01 mm. of aluminium, the exposures varying from forty minutes to one hour. An interval of a month was allowed for each reaction. The patient emigrated in September, 1912, and the colour then was reduced to a fairly uniform pale pink tint, except close to the eyelids, where it was somewhat deeper.

CAVERNOUS NAEVI.

These lesions are frequently particularly suitable for treatment by "cross-fire," and in such cases good results can generally be expected.

Half-strength applicators should be used with screens of 0.1 mm. of lead and exposures of from twenty minutes to one hour's duration, given daily for three consecutive days, and the series repeated in a month's time. Under this method of treatment the naevus slowly and steadily shrinks, and the process is unaccompanied by any surface irritation.

CASES.

Venous Naevus of Finger.

Case No. 19, F., aged 11, presented a venous naevus of the right middle finger, which was congenital but had slowly increased in extent in spite of two operations.

When seen in September, 1911, she had a large blue, pulpy, subcutaneous mass occupying the dorsal palmar and outer surfaces of the right middle finger. Two half-strength applicators, containing 60 mg. screened with 0.04 mm. of aluminium were used to cross-fire the naevus, the exposure being twenty minutes. A sharp reaction followed.

On November 16th the naevus was smaller, and the treatment was repeated for a thirty minutes' exposure.

In January, 1912, and again in March the same applicators were used for forty-five minutes with a screen of 0.1 mm. of lead. Finally in May this treatment was repeated for thirty minutes on two consecutive days.

When seen in September the finger was normal in colour, and though some slight thickening remained it was not sufficient to trouble the patient either by its size or appearance.

Cavernous Naevus.

In Case No. 5,021, F., aged 1 year, a small naevus was present on the tragus of the left ear at birth, and rapidly increased to the size of a large orange in spite of treatment by electrolysis and carbon dioxide snow.

When first seen, in August, 1911, the cavernous tissue involved the lower part of the ear and the side of the neck, while a scarred swelling rested on the clavicle, dragging the child's head down to the left.

Four half-strength applicators containing 30 mg. each, with a screen of $\frac{1}{10}$ mm. of lead, were used throughout the treatment; the exposures were made at first for four, and later for three, consecutive days, beginning with sittings of fifteen minutes each, gradually and carefully increasing the time to thirty minutes. The intervals allowed for reaction were slightly over a month. When seen in November the patient had had nine treatments in all. The naevus was reduced to the size of a pigeon's egg, occupying the posterior portion of the pinna and lobe of the ear. Some bluish capillary areas were present in the soft relaxed skin, but the scarring had almost completely disappeared, and the child's head was no longer displaced by the size and weight of the tumour.

Cavernous Naevus.

Case No. 5,104, F., aged 18 months, was brought to be treated for a large hemispherical pulpy naevus of 4.5 cm. diameter occupying the upper part of the left cheek. The condition had developed from a congenital red flat birth-mark, in spite of treatment with carbonic snow and electrolysis. The child's mouth and nose were distorted, and the swelling projected upwards in front of the left eye.

The exposures for this treatment were always given on three consecutive days with two half-strength applicators of 30 mg. each screened with 0.1 mm. of lead. The time of each sitting was twenty minutes during the first treatment in February, 1912, increased by five minutes each time up to three-quarters of an hour. The treatments were given at intervals of slightly over a month, and the child has had eight in all.

When seen in December the lesion was reduced in size sufficiently to relieve the dragging on the mouth and nose, and there was no obstruction to vision.

This patient is still under treatment.

KELOID.

The results obtained in the treatment of this condition with radium are admirable. Keloids of recent formation and occurring in young subjects are the most easily cured. Applicators of half strength should be employed with screens of 1 mm. of silver and an exposure of from fifteen to twenty hours extended over three successive days. The series should be repeated at intervals of one month.

By this method of treatment a steady and gradual return of the tissues to the normal is produced without any surface irritation.

Small elevated and rapidly growing keloids may be safely treated by a single exposure of one to one and a half hours' duration with a half-strength apparatus unscreened. The resultant scar is usually quite smooth and supple, and shows no tendency to further keloidal formation.

CASES.

Keloid of Face and Hands.

Case No. 13, F., aged 27, was severely burnt on the face and hands with petrol on March 30th, 1911. Healing was not complete until the middle of June, and shortly afterwards all the scars became keloidal and rapidly increased in size.

The patient was first seen on September 11th, 1911. At that date there was a large, very dense, bright red keloid covering the nose and both cheeks, and occupying the position usually picked out by lupus erythematosus. Both lower eyelids were drawn down, and there was epiphora. There were other keloids over the forehead (most marked on the right side) while in front of each ear there was a dense keloidal band 0.3 cm. in height and running from the level of the external canthus to the angle of the jaw. Another small keloid was present on the left side of the upper lip. The face was like a mask, rigid and expressionless. The dorsal surfaces of both hands were covered with darkly pigmented keloidal masses which also implicated the thumb and the first and second fingers of the left hand, so that the finer movements of the hands were performed stiffly and with much difficulty.

The patient was under treatment from September 12th, 1911, to May 20th, 1912, receiving six series of treatments, each series being of five days' duration, with exposures ranging from two to six hours each day. The applicators used were of half strength, and screened with 1 mm. of silver.

The improvement was steady and uninterrupted, and when seen in September, 1912, scarcely any facial blemish was appreciable, the epiphora had disappeared, and the texture of the skin over the greater part of the face was normal.

All the keloidal tissues had disappeared from the hands, though the skin was still slightly pigmented.

Keloid of Chin and Cheek.

This child (Case No. 158), F., aged 14, was severely burnt about the neck and chin on April 17th, 1911. Keloid formation was first noted in the scar in September, 1911; since that date it had steadily increased.

The patient was first seen on April 17th, 1912. There were then two extremely dense keloidal bands passing from the under surface of the chin to the right sterno-clavicular articulation and exercising so much traction that she was unable to close her mouth. There was another dense band running along the lower border of the right jaw from its angle to the symphysis menti, and all the skin between the right jaw and the clavicle was keloidal.

The case was treated with large-size, quarter-strength applicators screened with 1 mm. of silver; the exposures were of six hours' duration, and the patient received in all twenty treatments between March 11th and October 11th, 1912.

The child is still under treatment, but great improvement has already been effected. She can close her mouth perfectly, there is no longer any traction on the chin, the keloidal tissue on the right side of the neck has disappeared, and the dense bands leading from the chin to the sternum are much smaller and softer.

Keloid of Cheek and Chin.

In Case No. 5,060, F., aged 5, there was a very dense and highly coloured keloid, following on a burn received fifteen months previously.

The patient was first seen on October 30th, 1911. There was then a wide, ribbon-shaped band of keloid running from the right temple down the descending ramus of the jaw and spreading out so as to invest completely the right half of the chin on its inferior and lateral aspects.

The patient received in all thirty-two treatments between October 3rd, 1911, and October 15th, 1912. Half-strength applicators were used with screens of 1 mm. of silver, and each exposure was of three hours' duration.

Steady and uninterrupted improvement resulted from the treatment, and when the patient was examined on December 16th, 1912, scarcely any keloidal tissue was noticeable except at the right angle of the mouth, and this, the patient's mother stated, was rapidly disappearing.

Keloid Acne.

In Case No. 5,106, M., aged 37, the duration of disease was five years and all treatment had been ineffective. The patient suffered from intense irritation at the back of his neck, and a thick keloid patch 5 by 2 cm. had slowly developed, surrounded by an area of red, roughened skin.

The first treatment consisted in applying a quarter-strength applicator over the lesion for two hours on two consecutive days. The reaction was fairly sharp, with hyperaemia and tenderness, but the patch was much softer at the end of a month.

The second treatment was by a half-strength applicator for one hour, and this was repeated every five weeks till in December only a very small nodule remained in the centre of the part treated, and the patient was free from irritation.

No screen was used in treating this patient.

PAROTID TUMOURS.

These growths appear to be peculiarly susceptible to radium, and in almost every instance distinct improvement, frequently going on to apparent cure, is observed.

The treatment must, however, be lengthy, and much patience and perseverance are needed to bring about a successful result. Applicators of half or full strength should be employed and screened with 2 mm. of lead, the tumour should, if possible, be covered over its whole extent, and the exposure should be of not less than thirty hours' duration extended over five days.

The series of exposures should be repeated at intervals of four to six weeks so long as is necessary.

CASES.

Parotid Tumour.

The patient (Case No. 183), M., aged 55, was sent by a leading surgeon who had found him to be suffering from inoperable malignant tumour of the parotid. He had a hard oval tumour measuring 6 by 3.5 cm. firmly fixed to the ascending ramus of the right jaw. It was not tender on pressure, and occasioned very little discomfort, but it was growing rapidly.

The patient was treated on four occasions at intervals of six to eight weeks, the screen used being 2 mm. of lead throughout, and the exposure being four hours daily on alternate days for six, five, or four sittings; three to five full-strength and half-strength applicators, containing each from 20 to 80 mg. of radium bromide, were employed to cover the whole surface of the tumour, cross-firing it as much as possible, about 240 mg. being used on each occasion. After each treatment the swelling grew less, till only a hard nodule, measuring 3.2 by 2.4 cm., was left behind the angle of the jaw.

He is to report again if any further activity should become evident.

Parotid Tumour (Recurrent).

In Case No. 5,105, F., aged 18, the tumour was of four years' duration. It was removed by operation, July, 1910, but recurred in December, 1910. The growth steadily though slowly increased, and had not been checked by *x* rays.

The patient was first seen on February 5th, 1912, when there was a definite hard, fixed growth immediately below the lobule of the right ear. It measured 4.5 by 3 cm., and was distinctly tender to the touch. The patient complained of intermittent acute lancinating pains in it.

She received in all thirteen treatments between February 8th, 1912, and May 10th, 1912, with half-strength applicators screened with 2 mm. of lead, and the growth gradually decreased in size, and became far less tender.

When the patient came for examination on June 21st, 1912, the growth had completely disappeared. She no longer had any pain, and was in excellent health.

Parotid Tumour.

The patient (Case No. 5,150), F., aged 39, had a tumour excised from behind her right jaw in September, 1909; recurrences were removed from the same area in January, 1910, and February, 1911. A further recurrence was considered inoperable, and the disease was held in check for a time by *x*-ray treatment.

In May, 1912, the tumour was situated below, and anterior to, the right ear, filling up the fossa behind the jaw. It was oval, firm to the touch, and quite fixed, measuring 7 by 4 cm., and causing partial closing of the external auditory meatus. There was an enlarged gland to be felt near each end of the hyoid bone.

The patient was treated with five applicators, containing 260 mg. of radium, placed so as to "cross-fire" the tumour thoroughly, screened with 2 mm. of lead, for five hours daily for five consecutive days.

Two months later the tumour was reduced to half the size, and a further similar treatment with three applicators of 30 mg. each was carried out. In September no tumour could be felt, and the glands were shot size.

In November a very small nodule could be felt at the edge of the masseter. This was treated by a 20 mg. plate, screened with 1.5 mm. of lead, the time of exposure being as before. The nodule rapidly disappeared, and the patient was in excellent health when seen late in December, 1912.

FIBROMATA.

Two cases of fibromata of the penis have been treated, and both cured. In both instances all previous treatment had proved quite ineffective.

CASES.

Fibroma of Penis.

In Case No. 74, aged 56, the disease was of seven months' duration. No cause was ascertainable. The patient was awakened every night about 4 a.m. by painful erections, which occasioned him great discomfort and annoyance. He was impotent.

He was first seen on November 16th, 1911. There was then a small oval fibroma, 1 by 0.5 cm., situate on the dorsum of the penis in the middle line immediately behind the corona.

The patient was given eighteen hours' treatment six hours a day on three successive days, with a full strength applicator screened with 2 mm. of lead.

He reported himself on January 23rd, 1912. He stated that he had had no trouble or discomfort from painful erections since November 28th, and that he was no longer impotent. Palpation revealed the presence of an extremely dense nodule about the size of a BB shot at the site of the original tumour. It occasioned the patient no pain or annoyance. He has since remained perfectly well.

Fibroma of Penis.

The patient (Case No. 5,152), aged 51, had complained of a hard lump on the dorsum of the penis for nine months. It was not painful, but it caused slight retraction and impotence.

When seen in May, 1912, the tumour was the size of a walnut, and was situated in the corpus spongiosum at the root of the penis.

The patient had four treatments at intervals of about six weeks. On each occasion two full-strength applicators of 30 mg. each, screened with 2 mm. of lead, were fixed at right angles over the tumour for six hours daily for three consecutive days. There was a steady diminution in the size of the lump till in December it was no larger than a pea, and gave rise to no symptoms whatever.

FIBROID DISEASE OF THE UTERUS.

Only four patients suffering from this condition have as yet been treated with radium, and of these two only have been under observation long enough to enable any opinion to be formed as to the benefit which may be obtained. In both instances distinct improvement has resulted, but the cases are still under treatment.

CASES.

Fibroid Disease of Uterus.

In Case No. 237, aged 26, the disease was of three years' duration. The dysmenorrhoea and menorrhagia had steadily increased in severity. In May, 1911, she consulted a leading gynaecologist, who curetted the uterus; this was followed by slight but transient benefit. In April, 1912, she again saw her surgeon, who told her she had fibroids, and advised hysterectomy. This was declined and the patient determined to try radium.

She was first seen on June 3rd, 1912. She stated that her menstrual period lasted for seven days, the flow being excessive and the pain very severe, especially during the first three days, so that she was unable to leave her bed. Per vaginam the uterus was the size of a three months pregnancy and nodular. The cervix was hypertrophied, elongated, and oedematous.

This patient had two series of treatments, each for five consecutive days, six hours each day—the first June 3rd to 7th, the second July 22nd to 26th—with a tube containing 100 mg. of radium with a screen of 2 mm. of lead.

She reported herself on September 11th. Her last period, which occurred during the first week of September, lasted but four days; pain was only experienced on the third day, and then was but trifling. She estimated that the loss of blood had been reduced to one-eighth of the former amount. Vaginal examination showed no increase in the size of the uterus. The cervix was much firmer, shorter, and not oedematous.

The case is still under treatment.

Fibroid Disease of Uterus.

The patient (Case No. 5,090), aged 43, had suffered from menorrhagia, gradually increasing in severity for six years, till the period now lasted for a fortnight at a time and was accompanied by intense pain. She had also a constant mucoid discharge from the vagina, and was very thin and pale. She had some difficulty in walking.

Examination on June 6th, 1912, revealed a large irregular tumour reaching to the umbilicus, and by its size fixing a nodular and anteverted uterus in the pelvis. The anterior lip of the cervix was enlarged and oedematous.

The first treatment in January, 1912, was conducted by inserting a very small tube containing 50 mg. of radium bromide (screened by 1.5 mm. of lead) into the patulous cervix for six hours daily for ten days. This produced sufficient

amelioration of symptoms to make the patient wish for further treatment. In March a tube of 60 mg. was used as on former occasion for five days, and in May the 50 mg. tube was used as before for five days. By the end of the year the patient had had normal menstruation without much pain, and there was no vaginal discharge. She was looking and feeling well.

LICHENIFICATION OF SKIN.

This peculiarly intractable form of skin lesion is quickly cured by short exposures to half-strength applicators unscreened, or screened with the thinnest aluminium, and the relief afforded to the intolerable irritation is often marked within twenty-four hours. Cases so treated show little or no tendency to relapse.

Lichenification of Neck.

In Case No. 236, F., aged 31, the disease was of ten years' duration and had resisted all attempts at cure. There were two lesions—one, triangular in shape, with sides of 6 cm. in length, was situated at the lower part of the left posterior cervical triangle; the other, a circular patch 3 cm. in diameter, over the anterior surface of the left axillary fold. The patient complained of a frequent and almost intolerable irritation in the spots, which was aggravated by warmth and was exceptionally severe during menstruation.

She was treated on June 3rd, 1912, receiving a ten minutes' exposure with an applicator of half strength, screened with 0.01 mm. aluminium

She reported herself for examination on July 15th. The lesions had completely disappeared, leaving normal and healthy skin, and she stated that she no longer experienced even the slightest irritation.

She has since kept perfectly well.

Lichenification of Skin.

Fourteen years previously the patient, M., aged 58 (Case No. 278), was attacked by eczema on which lichenification developed. For several years itching had been a very marked feature of the case. When seen there were superficially scarred red patches over each clavicle. Between the shoulders at the back was a quadrilateral patch of skin with numerous scattered red papules. Similar lesions were present on the inner side of each knee and the sock area from the ankle upwards.

Five areas on the back were treated each for ten minutes with an unscreened quarter-strength apparatus. Three months later all the treated areas had responded well and the irritation had ceased. Six more patches were treated, and all cleared up in the same manner. There was no tendency to recurrence.

PRURITUS.

Radium is undoubtedly of great use in this condition, especially if it be of long standing and associated with leucoplakia or hyperkeratosis. When no actual lesion exists and the trouble is purely nervous in character the results are not so satisfactory, and often little benefit follows the application.

No definite rules can be laid down for treatment, as the local conditions vary so greatly, but the screening and exposures must be adjusted in relation to the character of the lesion.

CASES.

Pruritus Vulvae.

In Case No. 122, aged 62, the disease was of twenty-six years' duration. She had had every possible kind of treatment with lotions, ointments, baths, and high-frequency currents without success. The irritation at times was intolerable, and she was unable to get any rest.

She was first seen on January 5th, 1912. On examination two small hyperaemic and inflamed but non-ulcerative patches were found immediately within the ostium vaginae just above the fourchette, one on each labium, the right being the larger. She also complained of great irritation immediately above the clitoris, but there was no visible lesion at that site. Between her first visit and April 26th, 1912, she received in all nine treatments, each of five minutes' duration, with a half-strength applicator unscreened.

Slight but quite definite and persistent improvement followed on each treatment, and on May 9th she came to report herself as completely cured.

She has since kept perfectly well.

Pruritus Ani.

In Case No. 236, M., aged 57, the disease was of more than thirty years' duration. The patient was operated on by the late Mr. Allingham for a condition of hyperkeratosis of the anal orifice in 1897. He had, however, never been wholly free from pruritus since that date, and during the past two years the condition of hyperkeratosis had returned, and steadily increased, while the itching had become intolerable. All remedies had proved utterly futile.

He was first seen on May 24th, 1912. The anal orifice was cone-shaped and covered with a dense pearly epithelium, which was hard to the touch and traversed by numerous radiating fissures which showed the vascular corium at their base. The condition of hyperkeratosis extended upwards towards the spine and forwards to the perineum, and was surrounded by a zone which was hyperaemic and eczematous.

The patient had three series of treatments between May 28th, 1912, and September 26th, 1912; each series occupied four days, with exposures of three hours' duration each day. Half-strength applicators were used with screens of 1 mm. of silver.

When examined on November 14th, almost the whole of the hyperkeratosis had disappeared, except for a small circular patch close to the anal orifice. There was no longer any induration; the itching was but slight, was of an intermittent character, and easily bearable.

Pruritus with Leucoplakia Vulvae.

In Case No. 5,137, F., aged 50, the condition was of five years' duration. She was in a bad neurasthenic condition, due to the insomnia, loss of appetite, and loss of weight, which had followed on the almost ceaseless irritation.

She was first seen on June 25th, 1912, at which date there was a condition of hyperkeratosis in the angles between the folds of the labia minora, all round the ostium vaginae, and spreading backwards towards the anus. On the inner surface of the right labium was a rectangular patch of leucoplakia 2 by 3 cm. The patient complained greatly of the irritation, which she declared to be almost intolerable.

She had seven treatments between June 25th and September 5th, with the result that all the hyperkeratosis and leukoplakia disappeared, and the intolerable irritation became reduced to a very slight, inconstant, and quite easily bearable itching. She reports that she is still improving.

CHRONIC ECZEMA: PSORIASIS.

These conditions generally yield readily to short unscreened exposures with quarter-strength apparatus applied for two to three minutes on three successive days, the exposure being repeated after a week or fortnight if necessary.

With chronic eczema the cure may be permanent, but in psoriasis the patches tend to recur sooner or later, and require further treatment.

CASES.

Chronic Eczema.

Case No. 4, F., aged 52. This patient had been treated by routine methods for eighteen months for a widespread chronic eczema, but a number of intractable patches on the abdomen remained. Four of these were treated by an unscreened half-strength applicator applied to each spot for three minutes on three successive days.

In a month no sign whatever of the rash remained on the areas treated. Several other patches were treated in a similar manner, and all cleared up in the same remarkable way. Eight months later no recurrence had taken place.

Psoriasis.

In Case No. 5,148, F., aged 12, four small scaly patches of psoriasis were present eighteen months before the radium treatment was undertaken, one on each knee and on each elbow. The spots on the elbows had yielded to ichthyol, but no treatment had availed to clear the knees.

Quarter-strength plates were applied unscreened to the knees for periods of three minutes on three successive days. One month later the left knee showed only slight signs of the rash. The treatment was repeated to the left knee, and to a fresh patch that had arisen on the left elbow. In two months the elbow was free of disease, but the left knee still showed a small scaly area.

One month following the above date the knees and elbows were quite free from psoriasis, but two months later slight recurrences had taken place on each knee. The same treatment was repeated. The patient has not yet returned for examination.

LUPUS VULGARIS.

Treatment with Finsen light is to be preferred to radium in cases of this disease, and whenever possible it should always be adopted.

If radium be used, however, half-strength or full-strength applicators should be employed without screen, and a destructive reaction produced.

LUPUS ERYTHEMATOSUS.

This very intractable condition, which so often defies all treatment, is usually greatly improved by radium. Care must be taken not to give too strong a dose, and the best results usually follow the use of a quarter or half strength applicator sufficiently large to reach well beyond the borders of the lesion unscreened or screened with 0.01 mm. aluminium, and an exposure of forty to sixty minutes' duration.

CASES.

Lupus Erythematosus.

In Case No. 177, F., aged 31, the disease was of six years' duration, and began as a small spot just outside the outer

canthus of the right eye, whence it rapidly extended to the left cheek, nose, right cheek, and right upper eyelid. She had been treated with arsenic, quinine, iron, and mercury internally and salicylic acid, resorcin, and carbon dioxide snow locally, without benefit. Hyperaemia was a marked feature of the condition.

The treatment adopted was the application of unscreened quarter strength plates for an hour over various portions of the lesion. This was continued at intervals of a month for four months. The disease steadily retrogressed from the beginning. In October, 1912, the left wing of the lesion was hardly noticeable. Two small active patches were present, one on the left side of the nose, and one near the inner canthus of the left eye. Most of the right wing of the affected area was healthy, the lower edge alone remaining somewhat scaly.

The patient is coming at long intervals for treatment, and there is little doubt that her condition will eventually be cured.

Lupus Erythematosus.

In Case No. 5,129, M., aged 24, the condition began as a small whitish patch on the left cheek. It grew steadily, and a few months later a similar lesion arose on the right cheek. No vasomotor phenomena were present, except that both ears were scarred and somewhat purple in colour. Just before treatment there were three slightly raised red patches, one on the right cheek (2.5 by 3.5 cm.) and two on the left (2.5 by 1.3 cm. and 1.7 by 1.7 cm.). There was no rash on the nose. The red areas itched and smarted.

Treatment consisted of the application of a quarter-strength plate without metal screen for one hour over each patch. The reaction was smart, and the disease became less marked. All subjective symptoms ceased, and a month later the same treatment was repeated. This apparently cured the disease. Examination six months later showed the patches to be covered by smooth, supple, healthy scars, and no sign of activity had manifested itself.

TUBERCULOUS ADENITIS.

Prolonged exposures of from twenty to thirty hours' duration in all, with heavily screened radium apparatus emitting only the ultra-penetrating rays will generally bring about a steady diminution in size of the infected glands without causing suppuration or surface irritation.

CASES.

Tuberculous Adenitis.

The patient (Case No. 34), F., aged 24, came in October, 1911, to be treated for two enlarged tuberculous glands below the left jaw. She had had several operations previously for the removal of similar glands.

Two applicators of 20 and 30 mg., screened with 2 mm. of lead, were placed so as to cross-fire the glands, and applied for four hours daily for three consecutive days. This led to a considerable diminution in size, and the treatment was repeated in November. The glands shrank to small hard nodules and caused no further trouble.

Tuberculous Adenitis.

The patient (Case No. 103), F., aged 16, came in December, 1911, to have treatment for an enlarged tuberculous gland fixed to the skin by scar tissue, the remains of an old sinus. Two full-strength applicators, containing 30 mg. each, were applied, with screens of 2 mm. of lead, for three consecutive days, that over the scar remaining for three and a half hours and that over the gland for seven hours each day. When seen four months later the gland had shrunk to the size of a BB shot, and was movable under the skin; the scar was scarcely noticeable.

ARTHRITIS DEFORMANS.

This extremely obstinate, progressive, and crippling malady is not infrequently strikingly benefited by the daily drinking of 250 c.cm. of radium emanation solution of a strength of 1 to 2 millicuries per litre. The treatment must, however, be persisted in for quite a long time, and at least six weeks are likely to elapse before any change is noted.

In a favourable case the articular and muscular pains are lessened or disappear, the movements of the affected joints become much freer and are accompanied by less grating, the muscles controlling the joints regain much of their lost tone, and the general health of the patient is greatly improved.

With the majority of the patients the emanation solution produces a definite diuresis, and with a few it acts as a slight laxative, though free purgation has never been noted.

Up to the present time only twenty-one patients have been treated, but the results obtained are sufficient to warrant the hope that radium emanation solution will prove a most valuable addition to the routine medical treatment

CASES.

Arthritis Deformans.

In Case No. 197, M., aged 39, the disease was of twenty-five years' duration, the joints chiefly affected were the wrists, elbows, ankles, and knees.

The patient was first seen on April 25th, 1912. He complained of great pain, especially in his knees, elbows, and shoulders. He was unable to stand upright without sticks. He walked very slowly and with extreme difficulty, and could not cross his knees. The movements of his upper extremities were greatly restricted so that he was unable to brush his hair or shave himself.

The patient was put on a course of radium water, and took 250 c.cm. of radium emanation solution daily, except on Sundays, for eighteen consecutive weeks.

He was seen and examined on September 3rd, 1912, and very general improvement was noted. Pain in the affected joints was so slight as to be practically negligible, and he slept well. He was able to flex his knees and cross them one over the other. He could stand and put on his overcoat without supporting himself with a stick, and he stated that he felt much more secure when walking. The movements of his upper extremities were much freer and more exact, and he could now brush his hair and shave himself. Appetite was good, and the general health excellent.

The patient is still under treatment, and is steadily improving.

Arthritis Deformans.

In Case No. 220, M., aged 56, the disease was of four years' duration and commenced with synovitis of the right knee. The attack lasted for eighteen months, and was accompanied by much swelling and grating of the joint on movement. In January, 1912, the left knee-joint became affected and painful so that the patient was unable to bear his weight on his left leg.

He was first seen on May 17th, 1912. The left knee-joint was slightly swollen, and a little free fluid was present. Movement of the patella over the articular surface of the femur with the quadriceps tendon relaxed elicited slight grating, principally on the external aspect. The patient complained chiefly of a feeling of weakness and insecurity in the joint. The pain was not very severe and was most acute when he walked upstairs.

He received a six weeks' course of radium emanation water—from May 20th to June 29th. He was examined on July 11th, when he expressed himself as feeling much better, and said that the feeling of weakness in the knee-joint had disappeared, and that he was able to run a little. Examination of the joint showed a considerable diminution of the swelling, no free fluid was present, and passive movement no longer elicited grating. In October the improvement was still maintained.

Arthritis Deformans.

In Case No. 222, M., aged 35, the disease was of nine years duration. It commenced in May, 1903, with synovitis of the right knee following an injury. The knee was kept in splints for two years under the assumption that the disease was tuberculous. At the end of that period the joint was firmly ankylosed. The right elbow and right wrist became affected in June, 1904, complete ankylosis of these joints was noted in June, 1909. The left hip and ankle were attacked in September 1908, the hip becoming almost completely ankylosed at the end of 1910. The disease made its appearance in the right hip in the year 1908, but this never became so severely affected as the left one. The patient had been treated with hot air, peat, pine, and electric baths, high frequency, massage, etc., and had had 5 gr. of guaiacol three times a day for three years; nothing had served to arrest the progress of the disease.

He was given two courses of treatment with radium emanation solution. Each course lasted for six weeks and the patient drank 250 c.cm. of radium emanation solution every day except Sundays. The first course was from May 20th to June 10th, the second from October 14th to November 25th.

He was examined on December 12th. Very great improvement had taken place. All his movements were freer. He could walk much better, and no longer had pain in any of the affected joints. He stated that he could now dress himself completely without any help, except putting on his shoes, a thing which he had not been able to do for more than four years. His general health was excellent.

The improvement is still being maintained.

Arthritis Deformans.

The disease in Case No. 5,084, F., aged 52, was of twelve years' duration. The first symptoms were limitation of flexion at the hip-joint and pain under the gluteus maximus of an intermittent character. These symptoms gradually increased in severity for ten years, but in November, 1910, the patient had an acute exacerbation, and all movements at the hip-joint became restricted, and were attended with intense pain. In September, 1911, this pain was so severe and constant that she was unable to sleep for more than half an hour at a time, and became extremely worn and emaciated. Every possible form of treatment—dietetic and medicinal—had been tried without effect.

The patient commenced to take radium emanation solution on October 9th, 1911, and continued until December 21st, 1911. Slight improvement was noticed about six weeks after the treatment commenced, and from that time progress was both steady and rapid. The patient was examined on December 28th, 1911. The pain at the hip-joint had disappeared and all

the movements could be accomplished with ease. She stated that she was able to button her boots, which had been impossible for the last ten years. She slept well every night, and was able to lie in any position without discomfort. The patient was seen again in November, 1912, and was quite well.

Arthritis Deformans.

In Case No. 5,194, M., aged 54, the disease was of eighteen months' duration; it had commenced in January, 1911, with severe synovitis of the left knee which left the joint swollen. All movements of the knee became painful and were accompanied by coarse grating. Wasting of the left thigh muscles was very marked. The left hip became affected in February, 1912. The patient had tried all forms of medicinal treatment, electric and hot air baths, but without much effect.

Treatment was commenced on May 14th, 1912, and the patient drank 250 c.cm. of radium emanation solution of a strength of 6 millicuries per litre daily, Sundays excepted, until July 26th, 1912.

He was examined on September 3rd. There was then scarcely any restriction of movement at the left knee and hip, and all movements could be accomplished without pain. The wasting of the thigh muscles was no longer so pronounced, and the muscular tone was greatly improved. The patient stated that he was able to walk for three or four miles at a time without experiencing any discomfort.

This improvement has been steadily maintained.

GRANULOMATA.

Granuloma of Bridge of Nose.

The patient (Case No. 185), M., aged 16, struck his nose against a lamp-post on January 21st, 1912, splitting his skin in a vertical direction. The wound was sutured, but did not heal, and pus formed. It was then treated by fomentations, etc., and the split closed, but left a very marked thickening, which resisted all attempts to bring about its absorption. The thickening was confined entirely to the epidermis and subjacent connective tissue, and did not involve the periosteum. It was not tender, and only slightly painful on pressure, but occasioned the patient much annoyance by its unsightliness, as it gave him a Roman nose of an extremely pronounced type.

He was first seen on April 3rd, 1912, and received two treatments, each of six hours' duration, on April 4th and April 11th, with applicators of half strength, screened with 2 mm. of lead.

The mother of the patient wrote on June 3rd, 1912, saying that he had returned to school, that his nose was perfectly well, and there was no longer any distortion of its shape.

PAPILLOMATA.

Warty Growth.

The patient (Case No. 240), F., aged 30, was first seen on June 5th, 1912. A small, flat, warty growth was found on the dorsal surface of the metatarso-phalangeal joint of the left great toe, 1 cm. in diameter, surrounded by a zone of marked hyperaemia.

It was of six months' duration, and had steadily grown in spite of all kinds of treatment. It was very tender on pressure and acutely painful. The patient could not wear a boot, walked with great difficulty, and was taking morphine in order to get sleep at night.

She was given one treatment with a full-strength applicator unscreened for one hour on June 5th, 1912. She reported herself on July 8th, when the growth was found to have completely disappeared. The patient was wearing a boot, and could walk perfectly well. All pain had gone.

PROPHYLACTIC TREATMENT.

During the period between September, 1911, and December, 1912, thirty-nine patients who had recently undergone operation for malignant disease received post-operative prophylactic irradiation. Only seven recurrences had been reported at date January 1st, 1913.

In the treatment of these cases full and half-strength applicators with screens of 2 mm. of lead and containing from 50 to 500 mg. of radium were used. The length of exposure varied between twenty and sixty hours spread over a period of three to ten days, according to the nature of the disease.

It would be utterly futile at so early a date to make any statement as to the precise value of radium treatment in preventing or minimizing the danger of recurrence, but as the majority of these patients had suffered from extensive, severe, and rapidly progressive malignant disease, and the operators had expressed grave doubts as to the probability of their remaining free from the disease for more than a few months, the relatively slight percentage of recurrences so far noted does much to justify the routine adoption of post-operative irradiation. It should prove of especial service in those cases of malignant growth in which it has been found impossible to operate well beyond the appreciable area of the disease.

In the compilation of this report much valuable assistance has been rendered by my assistants, Dr. J. E. A. Lynham and Dr. A. Burrows, who have been associated with me in the treatment of the majority of the cases described.

APPENDIX.

REPORT OF THE CHEMICO-PHYSICAL LABORATORY.

By W. L. S. ALTON,

FELLOW OF INSTITUTE OF CHEMISTRY; DIRECTOR.

THE Laboratory has been concerned since the foundation of the Institute with measurements in connexion with the purchase of the radium salts acquired. Not only have the available amounts of radio-active material been excessively uncertain, but until the recent preparation of International Radium Standards, the use of various methods of determining the activity proved that the real value of the term "radium bromide" differed as much as the methods themselves.

The laboratory has prepared, with a few exceptions, all the applicators now in use, and in fact was engaged in this work during the building and equipment of the Institute; so that at the time of opening, there were twenty-four pieces of apparatus ready for use. Since then, with the acquisition of more radium salts, eleven applicators have been added, which, with their maintenance and the additional applicators still to be made, will keep the staff constantly employed.

In addition, work and experiments with radium emanation have developed steadily; the increasing utility of this form of treatment, both by means of applicators and by means of radio-active solutions, has necessitated the setting aside of a very large amount of radium salts to provide the emanation required. The Laboratory is solely responsible for the preparation of radio-active applicators and screens in accordance with the prescriptions of the medical staff for work within and without the Institute.

The total activity of the emanation produced for this purpose, and for radio-active solutions, exceeds that of 6,900 mg. of radium bromide.

The preparation of a continual supply of radio-active water has now gone beyond the experimental stage, and has resulted in the construction of a new type of apparatus which appears to be highly efficient. The amount of radio-active water prepared since the opening of the Institute exceeds 400 litres.

Finally, the Laboratory is called upon to perform all the determinations of the activity of the apparatus employed, and, in the case of all emanation applicators, the dosage during the period of application.

APPLICATORS.

Radium applicators may be of two kinds:

(*a*) Applicators containing radium salts, which may be further subdivided into two classes—(1) those in which the radium salts are fixed by means of varnish, and (2) those in which the radium salts are contained in capillary glass tubes.

(*b*) Applicators containing radium emanation.

Before describing the varnished apparatus, it will be well to point out that consideration must be paid to the concentration of the radium salt per unit area, as well as to the purity of the salt. It is obvious that a different therapeutic result will be obtained from 10 mg. of radium bromide spread over 1 sq. cm. of surface, than from the same amount spread over twice the area.

For this reason a unit of concentration has been adopted. This consists of a centigram of radium bromide spread over a square centimetre. Applicators containing radium salts to this extent of concentration are said to be "full strength" applicators; similarly, "half" and "quarter" strength applicators contain respectively 0.5 and 0.25 cg. of radium bromide respectively to each sq. cm.

Radium bromide has been accepted by the medical profession as the unit of measure for describing the content of radium applicators. This salt was the first salt of radium prepared, and happens to be most unsuitable for fixing to applicators by means of varnish, or for filling tubes.

In all probability all the apparatus at the Institute will be remeasured during the course of the coming year, and its radium content stated in terms of the element radium; not only will this procedure be more exact, but the applicators containing emanation can be more closely compared with those containing radium salts.

1. *Varnished Applicators.*

Flat varnished applicators have been made in three shapes:

(*a*) Squares, measuring 0.7, 1.5, 2.0, and 4.0 cm. across.
(*b*) Rectangles, measuring 2.0 by 3.0 cm.
(*c*) Circular plates of 6 cm. diameter.

The general method of making these flat varnished applicators has consisted in carefully weighing out the required amount of radium bromide or chloride, converting it to radium sulphate by means of sulphuric acid, and transferring the dried, ignited radium sulphate to the applicator, a flat shallow tray made of German silver, previously prepared by being coated with one or two carefully dried layers of varnish. The radium sulphate mixed with the third coat of varnish has then been evenly distributed over the prepared area and also carefully dried. Three more layers of varnish are added, care being taken to dry each one, and the applicator has been given a finishing coat of another type of varnish which gives it a glass-like surface. The temperature best suited for drying has been obtained in an electrically heated oven kept constant at 120° C. In addition, cylindrical surfaces and rods have been coated with varnish and radium salts by a similar method, except that these latter have been rotated in the electrical oven when drying so as to obtain an even distribution of the varnish and radium.

The time taken to prepare an applicator by this method has been on the average about six weeks. Apparatus of this type has been found in general to be very durable. It is all-important that each coat of varnish should be thoroughly dried before adding the next, if the applicator is to be in permanent use, otherwise the surface of the varnish becomes uneven and covered with bubbles, and the applicator very soon breaks down. "Full-strength" applicators need remaking every two years, but "half" and "quarter" strength apparatus may be kept effective for a much longer period by means of an occasional coat of varnish.

The destructive power of radium emanation (which produces the rays of radium) towards organic matter is responsible for the relatively short life of the "full-strength" applicators, but experiments have been made which satisfactorily prove that, in spite of this drawback, no other varnish resists as well as the one that is used.

These applicators may be exposed to a temperature of 120° C., and, if need be, may be sterilized by means of alcohol, mercuric chloride, or ether. But they may not be treated with dilute phenol solution, nor is it advisable to dip them in boiling water for more than a few seconds.

2. *Tube Applicators.*

The second type of radium applicators containing radium salts consists of capillary glass tubes filled with radium sulphate, closely packed so as to prevent any movement of the salt. This type of applicator is a great improvement on the one frequently met with, in which the tube is relatively large, and in which the radium salt shifts from place to place whenever the patient moves. It also has the advantage that it can be employed with screens of varying material and thickness, which advantage has not been the case with metal tubes packed with radium. Further, on account of their small size (they vary from 2 to 4 cm. long, and are no larger than 3 mm. in diameter), they can often be employed in quite small cavities. The capillary walls are quite thin, and are protected by means of a second glass sheath; in case of a breakage, fortunately rare, the capillary tube remains unharmed.

Emanation Applicators.

Applicators containing radium emanation may be divided into two classes: (1) Flat applicators; (2) tubes.

The activity of all radium salts or solutions depends principally upon the emanation they contain. If they are heated or subjected to a vacuum, they lose nearly all their activity, which may be collected in the form of gas by suitable means. This gas, radium emanation, glows in the dark, can be condensed at the temperature of liquid air, and produces a series of radio-active bodies, radium A, B, C, etc., from which are derived the alpha, beta, and gamma rays of radium salts. The activity of the gas, at first about 90 per cent. of the total activity of the original salts or solutions, decays gradually, falling to half value in 3.85 days, ceasing to be active in about a month, and finally yielding helium, an inert gas. Conversely, the salts or solutions regain their lost activity at the same rate as the activity of the emanation obtained from them has decayed.

It was obvious that this emanation could be of therapeutic use, for not only was it possible to make applicators or tubes for special cases, and to impart to them either a high or a low activity, but these applicators could be sent to most places in the United Kingdom, while the parent stock of radium remained at the Institute to furnish in a short while emanation for further needs.

The stock of radium salts at the Institute which had been set aside to produce radium emanation is divided into convenient amounts and introduced in aqueous solution into small bulbs.

These small bulbs, in sets of five, are so distributed between several mercury vacuum pumps that each pump shall deal with the emanation produced from about 250 mg. of radium bromide. From time to time the mixed gases containing radium emanation (for aqueous solutions of radium salts evolve oxygen and hydrogen) are pumped off, collected, and transferred into applicators in the following manner:

1. *Flat Applicators.*

These are simply hollow boxes, made of German silver, with one of the faces turned down on the lathe to about 0.3 mm.; it is not desirable to screen off too many of the rays, as additional screens can be added at will. The boxes are fitted with a lead tube having a capillary bore; they can be made in both circular and rectangular form and of large or small area.

To fill an applicator it is attached to a mercury vacuum pump and pumped empty; the mixed gases from the emanation apparatus, after having been sparked in an eudiometer tube to get rid of the oxygen and hydrogen, are drawn into the evacuated box by means of a special apparatus in connexion with the vacuum pump. When all the emanation has entered the applicator, the capillary lead tube is firmly pinched with a pair of pliers in order to make a hermetical seal; the box is then detached from the pump, and is ready for use.

2. *Tubes.*

Large glass tubes, with a capacity of 0.2 cm. and upwards, can also be filled by a similar method; the tubes are somewhat constricted at one end, and when filled are

sealed at this constricted end with a mouth blow-pipe. They can be used alone, or introduced into metal tubes which act as screens.

Capillary glass tubes, suitable for use in the smallest cavities, need a somewhat more elaborate method in their preparation. A tube of this kind, sealed on to a small glass bulb, is filled, by means of the vacuum pump and the apparatus spoken of above, with mixed gases from the emanation apparatus. The bulb and capillary tube are then cooled by means of liquid air to a low temperature (about −200° C.), when the emanation is condensed, but the other gases, oxygen and hydrogen, remain in the gaseous condition. These are pumped off and the bulb completely exhausted; the liquid air is removed, and the purified emanation again becomes a gas. Mercury is now allowed to enter the bulb, and, rising, forces the emanation into the capillary tube. Like the larger tubes, this can be hermetically sealed, and used with or without metallic screens.

Measurement of Activity.

The activity of these applicators and tubes is compared with a standard of radium bromide; they have varied in strength from 40 to 200 mg.

During the year eleven applicators and thirty-three tubes have been made. The total activity of all the emanation applicators and tubes made has been equivalent to 3,403 mg. of radium bromide.

RADIO-ACTIVE SOLUTIONS.

The coincidence that nearly all the well-known spas in Europe, whose waters are efficacious for gouty and rheumatic troubles, contain radium emanation in solution, has led to the preparation with some success of artificial radio-active waters.

These solutions can be made either with distilled water, or water containing the same kind of saline constituents as the majority of spa waters.

These liquids when violently agitated with gas from the emanation apparatus become radio-active. This is due to the solubility of radium emanation, and the radio-activity depends on the amount of gas introduced and on the volume of liquid present.

The apparatus at the Institute is designed to give solutions with an activity from 1 to 2 millicuries per litre, an activity much greater than the best of the radio-active waters from natural sources.

MEASUREMENTS.

All determinations of the radio-activity of specimens of radium salts or of applicators are made by direct comparison with a standard specimen of radium chloride. An International Standard has been acquired, and comparisons of the gamma-ray activities are made with an electroscope by Rutherford's method. The walls of the electroscope must be made of lead at least 3 mm. thick, and the readings obtained for the standard, and for the specimen measured, must be obtained under the same conditions of distance, screening, etc.

Emanation applicators and tubes must be measured after four hours, in order that the gas may have reached its maximum activity, which is attained when it has produced its equilibrium quantity of radium A, radium B, and radium C. The value of the applicators at any time can be found by calculation from the decay curve of radium emanation, and, consequently, the dosage over any particular period obtained.

Measurements of the activity of the radio-active water used at the Institute are made from time to time. Since the water has a relatively high activity, it can be directly compared with a small standard tube of radium chloride, the measurements being made by the gamma-ray method.

When the activity of a solution is small, such as that of natural waters, or of artificial waters containing only a small amount of emanation, the gas must be expelled from solution by boiling, and introduced directly into a gas electroscope. The standard emanation in this case is obtained either from a dilute solution of radium salt, or, better, from a small amount of pitchblende whose radium content has been determined. These determinations of the radio-activity of solutions are given in millicuries, a millicurie being the amount of emanation in equilibrium with a milligram of radium.

SCREENS.

The screens used to filter off the different rays given out from the radium apparatus are:

(*a*) *Aluminium:* 0.01, 0.02, 0.04, and 0.08 mm. thick;
(*b*) *Silver:* 0.5 and 1.0 mm. thick;
(*c*) *Lead:* 0.1, 0.2, 0.4, 0.5, 1.0, 1.5, and 2.0 mm. thick.

Radium salts, when in equilibrium with the emanation produced from them, give out three kinds of ray: the alpha, beta, and the gamma.

The alpha ray is particulate—that is to say, it consists of actual particles emitted from the source. These particles lose their velocity and therefore their activity in a few centimetres of air, and since the absorption of all the radium rays has been found to be directly proportional to the density of the screen, it is obvious that the alpha rays will be completely absorbed by a very thin screen of aluminium (about 0.1 mm.). Since the layer of varnish in most applicators is more dense than this amount of aluminium, it follows that the alpha rays are completely stopped, but the coats of varnish gradually become permeable, due partly to minute cracks, which spread throughout the layers, and partly to the absorption of emanation by the varnish, so that in course of time an applicator emits alpha rays.

The beta rays are far more penetrating than the alpha rays, and consist of negatively charged bodies projected with velocities of the same order as the velocity of light. They vary considerably as to their velocities, and are distinguished by the terms "soft beta" and "hard beta." For this reason a considerable variety of screens are used, depending on the nature of the radiation required.

Again the rule that the absorption varies directly with the density applies, and since the coefficients of absorption of aluminium, silver, and lead to the beta rays are 14.0, 75, 122, it follows that very much more aluminium than lead must be used to absorb all the beta rays.

The gamma rays are extremely penetrating, and are somewhat analogous to very penetrating Roentgen rays. When all the beta rays are absorbed by 5 mm. of lead, the radiation escaping is nearly all of the gamma-ray type; it is therefore obvious that with the screens used at the Institute, none of the gamma rays are absorbed.

Secondary Rays.

The use of thick screens of heavy metal is, however, accompanied by the production of secondary rays, which are capable of causing considerable surface irritation. This secondary radiation is screened somewhat by the use of many layers of black paper or black rubber tubing.

The whole subject is one of great interest, as the ideal screen should be capable of cutting out the primary beta rays during a long period of exposure, while at the same time giving rise to very little secondary radiation. Screens of different metals will be under trial during the coming year, and it is hoped that some progress will be made in this difficult question.

EXTERNAL WORK.

The laboratory has undertaken from time to time the preparation of applicators and radium apparatus for medical men; four applicators have been made. It has also performed eleven determinations of the radio-activity of various specimens of radium salts, including minerals and natural waters.

AT the annual meeting of the Liverpool Medical Institution held on January 16th, the following office-bearers and members of council were elected. Those marked * did not hold the same office last year: *President*, Mr. Robert Jones; *Vice-Presidents*, *Thomas Bushby, *W. B. Warrington, C. J. Macalister, J. Lloyd Roberts; *Treasurer*, R. J. Hamilton; *General Secretary*, *Frank Hugh Barendt; *Secretary of Ordinary Meetings*, Alexander Stookes; *Secretary of Pathological Meetings*, W. Blair Bell: *Librarian*, *Nathan Raw; *Editor of the Journal*, John Hay; *Council*, T. R. Bradshaw, T. B. Grimsdale, Edward W. Hope, W. S. Henderson, N. Percy Marsh, C. E. Solomon, *R. E. Harcourt, *M. T. Stack, *A. W. Riddell, *D. Moore Alexander, *J. A. Howard, *W. B. Bennett; *Auditors*, W. S. Henderson and *A. P. Hope Simpson.

A Lecture

ON

THE DIAGNOSIS AND TREATMENT OF CANCER OF THE RECTUM.

Delivered at the Cancer Hospital, Brompton, on January 22nd, 1913.

BY

W. ERNEST MILES, F.R.C.S.,

SURGEON TO THE CANCER HOSPITAL AND TO THE GORDON HOSPITAL FOR RECTAL DISEASES, ETC.

The rectum is conveniently divisible into three parts:

1. The *anal canal*—that portion embraced by the external and internal sphincters and by the horizontal fibres of the levatores ani.
2. The *ampulla*, consisting of a lower part below the peritoneal reflection and an upper part covered by peritoneum in front and at the sides only; and
3. The upper portion joining the terminal part of the pelvic colon at the level of the middle of the third piece of the sacrum about 4½ or 5 in. above the muco-cutaneous junction of the anus.

Above this the bowel is pelvic colon. Anatomists formerly described as part of the rectum the portion of bowel extending from the left sacro-iliac synchondrosis to the middle of the third piece of the sacrum, but nowadays they relegate this portion to the pelvic colon, and we shall avoid a great deal of confusion if we follow them.

Cancer may occur in any of the three parts of the rectum. You see before you sixty specimens of the lower bowel removed for cancer, and an examination of them will convince you that in no single case is the lowermost border of the growth at a greater height than 5 in. from the anal margin. It is obvious, therefore, that a cancerous tumour of the rectum can always be reached by digital exploration, and that if the growth is beyond reach it is not in the rectum at all, but in the pelvic colon.

Now, the position of the growth has a considerable bearing on its appearance and on the symptomatology when the case first comes under observation. If it is situated in the upper portion it generally involves the whole circumference of the bowel and tends to produce invagination; if in the ampulla it usually encompasses from a half to four-fifths of the circumference, and in nearly all cases is found to have infiltrated the posterior wall; if it has arisen in the anal canal the anterior wall is generally the site of election, and from a third to a half of the circumference is involved.

Symptoms.

It is of the utmost importance that the earliest symptoms indicative of the presence of a malignant tumour in the rectum should be known and recognized. The disease is insidious in its inception and early progress, and may exist for six months or longer before giving rise to symptoms which may induce the patient to seek advice. For this reason many cases do not come under observation until the disease is far advanced and beyond the limits of useful operation. About 25 per cent. of the cases under 60 years of age that I see are probably beyond operation. Let us see how the position of the growth affects the symptoms. If the neoplasm involves the anal margin, a situation where the mucous membrane is particularly well supplied with sensitive nerve terminals, pain is an early manifestation. If the growth is situated in the upper portion of the rectum, owing to the great tendency there to circular infiltration of the gut, a stenosis is produced and an attack of mechanical obstruction may ensue quite early. In both these cases the patients seek advice while the disease is still in an early phase of development. When the lesion occurs in the ampulla the case is different. Here the mucous membrane is much less sensitive, and the lumen of the bowel is so large that a considerable time must elapse before the entire circumference has been encompassed by the growth. Under these circumstances the patient, until he begins to lose blood from the rectum, or notices a discharge, is not aware that there is anything of a serious nature amiss with him. There is a considerable latent period during which there are no objective symptoms at all, the growth being still in the pre-ulcerative stage. So soon as surface disintegration commences, bleeding from the rectum makes itself manifest, and this is generally the first objective symptom that causes the patient to seek advice. The symptoms indicative of the presence of a cancerous growth in the ampulla of the rectum may be conveniently considered during the successive phases of its progress, as follows:

(a) *Symptoms Prior to the Disintegration of the Surface of the Growth.*

From what I have already said it is obvious that the growth has existed for several months prior to the onset of the first objective symptom that impelled the patient to seek advice. But I want to call your attention to a particular sign which is always suggestive of cancer of the rectum in this situation, and the two patients here to-day are illustrative of its importance. Careful inquiry as to the habits of life during the year or two preceding the onset of objective symptoms will nearly always reveal the fact that a prolonged and well marked attack of constipation occurred several months beforehand. This attack of constipation is not of the ordinary kind which is speedily relieved by aperients, but is of the nature of a temporary functional inertia persisting for several days or weeks at a time and not yielding to treatment. Aperients appear to have little effect beyond producing small ineffective motions and the passage of flatus. After a period varying from three to six weeks, diarrhoea, slight at first but showing a tendency to become more marked, supervenes and persists. It is important, therefore, that a thorough examination of the rectum be made in every case in which diarrhoea supervenes upon a prolonged attack of constipation and persists in an otherwise healthy patient, since the possibility of carcinoma being the cause is very great and should not be lost sight of. The temporary inertia of the bowel is not associated with abdominal distension, indicating an absence of mechanical obstruction.

(b) *Symptoms During the Process of Surface Disintegration.*

The growth having become ulcerated, local symptoms of a more definite and objective character appear. The rectum becomes irritable and intolerant of the presence of faeces. Hence there is a desire to evacuate frequently, the bowels acting from twelve to twenty times during twenty-four hours. As a rule, the first and second evacuations consist of faeces, the remainder consisting almost entirely of mucus mixed with blood and pus. Bleeding, though occurring with each action of the bowels, is seldom copious, but is more marked in cases of papilliferous cancer than in the infiltrating adeno-carcinoma. If the bleeding is free, the blood generally comes from coexistent internal piles. The appearance of an increased quantity of mucus in the stools is characteristic of ulceration of the growth taking place. This mucus is peculiarly offensive in odour. Local pain in the rectum from the contact of the faeces with the ulcerated surface is usually present, though not severe, as long as the growth does not extend into the anal canal. When the anal canal becomes involved, the pain is acute at each movement of the bowels, and persists for some time afterwards. During this stage of the disease the patient begins to lose flesh in a decided manner. The loss of weight generally begins to show itself in from six to twelve months after the initial attack of constipation, and becomes progressive. If bleeding is free, and especially if suppuration is profuse, emaciation sets in, and is frequently rapid.

(c) *Symptoms when the Growth has Infiltrated the Perirectal Tissues and Perforation of the Rectal Wall has Taken Place.*

When the disease has reached this stage the symptoms are pronounced, and usually indicate the implication of neighbouring viscera. They consist of haemorrhage, which is often free; pus in considerable quantity on account of pelvi-rectal suppuration and the development of ischio-rectal fistulae; deep-seated pain in the pelvis, over the sacrum, and extending down the thighs from

implication of the sacral plexus by extramural spread of the disease; and the supervention of general cachexia from chronic septic absorption.

(d) Symptoms when almost Complete Occlusion of the Lumen has Supervened.

This stage is generally reached in eighteen months or two years after the onset of the earliest symptoms, and the disease is then too far advanced for removal. The attendant symptoms are: (1) Obstinate constipation alternating with diarrhoea; (2) local pain and intermittent attacks of abdominal pain; (3) intermittent haemorrhage; (4) increasing abdominal distension; (5) rapid emaciation; and finally (6) an attack of absolute obstruction.

EXAMINATION OF A CANCEROUS TUMOUR OF THE RECTUM.

A thorough exploration of the whole of the rectum in a systematic manner is the most reliable way of detecting the presence of malignant disease. The finger should be introduced to its full extent, so that the highest possible point can be reached. With an ordinary length of finger the promontory of the sacrum can nearly always be felt. The finger should then be swept round the entire circumference and gradually withdrawn as each encircling movement is made. In this way even a small nodule in the rectal wall can scarcely be missed. If a tumour be felt the following points should be noticed. Is the growth sessile or pedunculated? Is the surface smooth, lobulated, or excoriated? How much of the circumference is implicated by the growth; is the lumen of the bowel at the site of the growth stenosed? if so, can the finger be introduced through the stenosis? Is the growth movable or fixed to the muscular coat? if so, is the diseased part of the bowel movable or fixed? Finally, does the growth extend upwards beyond the reach of the finger?

Additional information as to mobility and possible extramural permeation may be obtained by bimanual examination, under an anaesthetic if necessary. The sigmoidoscope should always be used in order to verify the findings of the digital examination. You will have the opportunity of examining the condition in these two cases by the sigmoidoscope.

DIFFERENTIAL DIAGNOSIS.

From the clinical point of view the conditions which are most likely to be mistaken for carcinoma are polypus, villous papilloma, benign stricture, invagination of the rectum, gummatous deposits, and tuberculous ulceration. Polypi are very rare in adults. They are soft, pedunculated, free from induration, and seldom of a large size. Villous papilloma is fairly common. It is pedunculated, and may reach a large size. Its surface is soft and irregular, and as it secretes a large quantity of watery fluid it produces frequent evacuations of the bowels, but no induration exists anywhere. In benign stricture the margin is firm and regular; it does not bleed, and it is freely movable and generally accompanied by a purulent discharge. Invagination of the rectum may, when advanced, simulate carcinoma, but it is distinguishable from cancer by its even contour, the regular outline of its lumen, and the absence of induration. Gummata of the rectum are rare, and they may be distinguished from cancer by their smooth, round, elastic feeling, by the history of antecedent syphilis, and by the result of a Wassermann reaction. Tuberculous ulceration is not very common. It is difficult of diagnosis owing to the swelling produced and the chronic inflammatory thickening accompanying it, as you will see from the specimen shown; but in tubercle the ulceration is generally superficial, and the edges of the ulcer are not everted. Evidence of tuberculosis in other parts is often found.

THE EVOLUTION OF THE GROWTH.

An early adeno-carcinoma of the rectum forms a sessile, rounded, or oblong tumour, involving the mucous and submucous coats of the bowel. The growth increases in size in all directions, though apparently more rapidly in a transverse than in an upward or downward direction. Though at first freely movable on the subjacent muscular coat, it sooner or later becomes adherent to it. This adherence denotes that infiltration has commenced, and gradually the whole tumour becomes firmly fixed to the wall of the bowel. It is impossible to determine how long infiltration of the muscular coat occurs after the primary appearance of the growth as a definite tumour, as cases vary in the rapidity of their evolution, but from a calculation based on the time of onset of the first symptoms I should say that six months is a rough average. As the growth increases in size the oldest part of the surface, probably owing to malnutrition, disintegrates and a definite ulcer appears—superficial at first, but gradually becoming deeper. The ulcer exhibits the well-known malignant characteristics of an irregular indurated margin, an uneven, excavated surface, and an indurated base. The lateral extension of the growth is not rapid, and when one-half of the bowel has been encroached upon the disease has probably been in existence for about a year; when three-fourths or five-sixths have been involved the growth is from eighteen months to two years old. These are rough averages. As the growth encompasses more and more of the circumference the wall becomes correspondingly rigid, and marked narrowing of the lumen results. Concurrently with the increase in size the spread of the disease is taking place partly by infiltration and partly by permeation of the lymphatics. Spread occurs both intramurally and extramurally. Intramurally the cells grow along the submucous lymphatics only to a very slight extent longitudinally in the majority of cases. They tend more to permeate by radial intramuscular channels to a deeper lymphatic plexus, where the area of spread may be of considerable extent, and from this they are conveyed by collecting channels running extramurally to the lymph glands. The clinical fact that recurrence may take place in the cut end of the bowel at a distance of several inches from the site of original growth strongly supports the view that cancer cells may permeate the intramural lymphatics for a considerable distance. It is impossible to state how soon after a cancerous tumour has developed extramural spread occurs. It is quite wrong to suppose that it takes place very late in the course of the disease. I have seen several small and freely movable growths, clinically early, which had given rise to widespread lymphatic involvement and to deposits of cancer in the pelvic mesocolon and pelvic peritoneum at a distance of several inches from the site of primary growth. Visible spread like this can only be recognized when the abdomen is opened and cannot possibly be detected by the ordinary methods of rectal examination. The invisible spread is much more subtle. From clinical observations of post-operative recurrences, I am quite convinced that cancer cells, even in comparatively small and early growths, invade the lymphatic channels to a distance far beyond the limits of the visible spread, and consequently all the tissues contained in the lymphatic areas leading from the primary growth to the lymph glands must be regarded as invaded territory. I divide these areas into three—the zones of downward, lateral, and upward spread. There is a free intercommunication between the lymphatics of the rectal wall and those contained in the ischio-rectal fat, perianal skin, and the external sphincter. Involvement of this area does occur even when the primary growth is situated in the upper part of the rectum. The lateral zone comprises the levatores ani, retrorectal lymph glands, internal iliac glands, the prostate, the base of the bladder, and, in the female, the cervix uteri, and the base of the broad ligament with Poirier's gland. Situated between the upper surface of the levators and the pelvic diaphragmatic fascia there is an extensive lymphatic plexus which freely communicates with the intramural lymphatics. In several cases I have observed small plaques of growth located either in the substance of the levators or upon their upper surface close to the rectal wall, and, in one instance, in the substance of the muscle close to the origin of the muscle from the pelvis. The levator ani muscle is therefore exceedingly vulnerable to the spread of rectal cancer, and should in all instances be freely removed. The zone of upward spread is the most important of the three. The structures in this lymphatic area are—the peritoneum of the floor of the pelvis, the whole length of the pelvic mesocolon, the paracolic lymph glands, and the glands grouped at the bifurcation of the left common iliac artery. Spread occurs into these very rapidly.

I have gone very briefly into the pathology of the spread in order to show you that any operation on cancer

of the rectum that is useful at all must remove certain areas of highly dangerous tissue. The facts of surgical pathology alone are sufficient to damn all such restricted operative procedures as perineal excision and resection with end-to-end anastomosis. I cannot speak of the end results of perineal operation in the hands of others. I only know that I gave them far too long a trial, extending their scope as far as possible, limiting my selection of cases more than I do now, and faithfully following my results. I did 58 such operations; I had 55 recurrences; and I am convinced.

TREATMENT.

The failures of restricted operations and the observations clinically on the areas of recurrence led me to devise the radical abdomino-perineal operation. I shall not now describe my operation, but you will have the opportunity to-morrow of seeing one of these cases operated upon by the method; the other will be operated upon on Thursday, January 30th. Briefly, the operation consists in removing nearly the whole of the pelvic colon, the whole of the mesocolon, the whole of the levatores ani, and the whole of the rectum and anus and ischio-rectal tissues, and making a permanent inguinal colostomy. You will see the results in those patients who have been good enough to return to us to-day for examination after three and more years since the operation, and you will find that they have practically complete sphincteric control of the abdominal anus, and that this artificial anus is neither uncleanly nor unsightly, nor is it a source of discomfort. The operation is a severe one. I do not think that it should be performed on those over 60 years of age; of 10 such cases all died. With regard to the remainder, of whom there were 36, 8 died from the effects of the operation, 4 have had recurrence, 2 died of intercurrent disease, while 22 are to-day alive and well after periods varying from six months to six years.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE TREATMENT OF OBSTINATE SCIATICA BY PHENAZONUM INJECTIONS.

THE treatment of obstinate sciatica is attended with so many difficulties that success by Tubache's method[1] may be of interest.

A. V., aged 66, of robust constitution, weight 15 stone, came under my care on August 30th, 1912. He had had a sharp attack of sciatica in 1886, and was quickly cured by the baths of Hammam R'Irha, Algiers; again, in 1905, he was apparently cured of another attack by visiting the same baths. An attack in September, 1911, was greatly relieved by three weeks of Harrogate treatment, baths, massage, electricity, etc., and in June, 1912, after a sharp attack of lumbago, a more severe trouble arose from a return of the sciatica. Three weeks at Droitwich; baths, massage, and Aix douche made the patient's condition steadily worse. He returned home and took to his bed on September 3rd. The daily application of an electric light bath was tried, and blisters along the course of the sciatica nerve, salicylates, potassium iodide, and other remedies, but he continued to experience the most acute pain on the slightest movement. He could only lie on his left side, the sciatica affecting his right leg from thigh to foot.

On September 21st I commenced the deep hypodermic injections of the following: Phenazonum, ʒijss; cocain. hydrochlor., gr. ijss; aq. destill. steril., ʒijss; 1 c.cm. (mxv) being injected into the upper part of the thigh over the nerve. The injection was repeated at different places along the course of the nerve on September 23rd, 25th, 27th, and October 3rd, 7th, 9th, 13th, 17th. They caused no pain at the time, but invariably about 6 hours after a great deal was experienced, which lasted some hours, and sometimes necessitated an injection of morphine. There was no great relief from the treatment until October 12th, but the nearer the injection got to the nerve the greater the relief seemed to be. For instance, the injection over the external popliteal behind the head of the fibula gave great relief, and another injection, on October 13th, on the dorsum of the foot completely removed the pain after four hours, and it has not returned.

After October 12th the patient rapidly improved; the pain ceased and movement became easy. About this time some anxiety was felt because of some slight cardiac trouble, causing a slow and intermittent pulse; but a mixture of strychnine and digitalis put this right again. Since October 28th the patient has gradually resumed his usual habits, and experiences only a considerable stiffness in his right leg. The power of walking is gradually improving.

[1] *Practitioner*, July, 1912.

High Wycombe, LEWIS W. REYNOLDS, M.R.C.S.Eng.

RUPTURE OF THE PLEURA WITHOUT FRACTURE OF RIBS CAUSED BY A BUFFALO.

W. R., a German hunter aged 27, was attacked by a buffalo on October 7th, 1912, near Kasisi Camp, on the Anglo-Belgian frontier, about 40 miles from Fort Portal, Toro, in the Uganda Protectorate.

The buffalo first attacked a native porter, goring him in the abdomen from one side to the other as it tossed him. The man died on the spot. It next turned its attention to W. R., threw him on his back, and tried to crush him by pressing his chest with its head. With great presence of mind W. R. then pushed two fingers of each hand into the animal's eyes, which made it start back suddenly. Before he could get hold of his rifle (which lay by his side) the buffalo made a second rush at him and tried to crush him as before, the hunter trying to relieve the pressure by seizing both the animal's horns. In the meantime one of the other porters succeeded in killing the buffalo after three shots.

In the struggle the following injuries were sustained:

1. General bruising of the whole body and limbs.
2. A lacerated wound of the neck on the right side, and a double wound of the middle of the right arm, caused by penetration with the horn, and another lower down.
3. The principal injury, however, was rupture of the pleura between the fourth and fifth rib just outside the nipple line for 4 to 5 in.

The patient was first seen by me on October 11th, four days later. He was very anaemic, and there was a well marked mitral bruit. At each expiration the lung protruded from the aperture above described to the size of a large walnut. There was extensive emphysema of the chest wall up to the sixth rib in front and to the fourth in the axillary line. No pleuritic rub could be heard, being probably masked by the crepitations. The base of the lung was clear. The temperature was 101° F., the pulse 100, and the respirations 32.

A pleuritic rub was heard reaching to the base of the left lung on October 14th. The temperature was 98.6° in the morning, and 102.4° at 8 p.m.

The patient made a rapid recovery, and on October 18th the temperature was 98.2°, the pulse 84, and the respirations 26. The treatment was then stopped at the patient's request, but there was still dyspnoea and pain on November 2nd.

Note by DR. CROPPER, *late of the C.M.S. Hospital, Toro.*

I saw this patient on November 2nd and three following days. He was very anaemic, and I diagnosed malaria; this was confirmed by the microscope, which showed well marked benign tertian rings. Quinine in doses of gr. xv quickly put an end to the fever. The wounds were nearly healed. Pain in the left chest was diminishing, but there was still dullness at the left base, probably due to effused blood still unabsorbed. The rent in the pleura was closing, but on forcible expiration there was still a small protrusion of the lung nearer to the shoulder-joint than the nipple, and apparently more external than just after the injury. This could be controlled by a well fitted pad strapped on.

S. R. BHAGWÂT, L.R.C.S.E.,
Government Surgeon, Fort Portal, Uganda.

Reports
ON
MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

ROYAL NAVAL HOSPITAL, MALTA.
THREE CASES OF INTEREST.

(Reported by G. T. BISHOP, Fleet Surgeon, R.N.)

THE following notes of three cases occurring at the above hospital have been forwarded for publication by the Director-General of the Medical Department of the Royal Navy:

1. *Two Inguinal Herniae on the Same Side.*

P. R., 28, A.B., a Maltese. Admitted for operation with a right inguinal hernia, which he sustained about two years before. Examination showed a bubonocele, which extended down to the external ring. When the parts were exposed, two well-developed sacs were found, a direct (which was empty) coming through the conjoined tendon, and an oblique, containing some non-adherent intestine. Both sacs approximated towards their distal ends, and they were nearly touching at the external ring.

REMARKS.—I have previously seen a similar case, but it was not reported. Perhaps in all cases of direct hernia a sac of the oblique variety should be looked for, which may not be so apparent as in the above patient.

2. *Salvarsan in Locomotor Ataxy.*

E. H., 36, leading seaman, admitted with locomotor ataxia. Has two circular punched out ulcers on plantar surface of right foot about the size of a split pea and a threepenny piece respectively. Pupils do not react to light, knee-jerks absent. Romberg's sign very marked. Gait unsteady. The patient is very thin, and looks ill. Shooting pains down both thighs and legs. No cutaneous anaesthesia could be made out. Wassermann's reaction positive. Urine contained a trace of albumen, otherwise normal.

On August 10th 0.3 gram of salvarsan administered intravenously. This was followed by some slight pyrexia and an increase of shooting pains; subsequently also by some girdle pains.

On August 26th 0.6 gram of salvarsan was given as before. This time there was more pyrexia, temperature reaching 103°. It became normal, and remained so after August 29th.

On October 1st the patient was discharged for passage to England. He walks quite well and speedily. Romberg's sign is negative. No albumen in urine; one ulcer has healed, and the larger practically so. Pupils react sluggishly to light. Has had no lightning pains for a month. Knee-jerks still absent. Most marked was the improvement in general health. The careworn look the patient had on admission was replaced by a cheerful expression, and his face filled out considerably.

REMARKS.—It is of course impossible to say whether this great improvement will be maintained, but the case certainly shows what salvarsan can do in an early case of tabes. The patient could not say when the various symptoms commenced, but he thought he had had unsteadiness for two months at least before admission.

3. *Iodine in Corneal Ulcer.*

J. Q., 23, stoker, was admitted with a history of ulcer of the cornea for three weeks past, which showed no inclination to improve.

Examination showed a crescentic, unhealthy-looking ulcer below the pupil, accompanied with much pain, circumcorneal inflammation, slight chemosis, photophobia, and lacrymation. The patient was treated for four days with boracic fomentations and irrigation, with just sufficient atropine to keep the pupil dilated. This resulted in no improvement.

On October 9th, after some 2 per cent. solution of cocaine had been dropped in the eye, tincture of iodine was applied to the ulcer by means of either a probe or camel-hair brush. This treatment was continued twice a day (with an occasional drop of atropine solution) until October 14th, when it was discontinued. The ulcer was then quite clean-looking, although much circumcorneal injection remained. This inflammation soon cleared up and the eye was well on October 20th, there being only slight opacity at the seat of the ulcer.

REMARKS.—I hasten to report this case, for I am not aware that iodine has been applied to corneal ulcers, and its effect here was very striking.

A fine camel-hair brush was found the best means of applying the tincture. It was possible that the treatment was not required for so long a period as five days, for the surrounding inflammation persisted while the application was being made and rather masked the improvement in the ulcer. Cocaine was required after instillation as well as before.

Reports of Societies.

MEDICAL SOCIETY OF LONDON.

Monday, January 13th, 1913.

Sir W. WATSON CHEYNE, President, in the Chair.

The General Practitioner-Surgeon.

MR. T. NORTH read a paper on the rise and possibilities of the general practitioner-surgeon. The object of the paper was to show the possibilities of operative surgery in general practice. Patients who required operative treatment might be divided into three classes. First, the rich, who could afford whatever might be necessary in treatment. They would go, as before, to surgeons whom they knew or had heard of as being pre-eminent in the class of operation they required. At the other extreme were the very poor, who would continue to receive treatment, in the future as in the past, from the hospitals. Between these two and merging into each was a class who could afford moderate fees or some fee for surgical treatment, but who could not find any one willing to operate for fees within their reach, or, if willing, capable of doing it. This condition of affairs would soon pass and there would be soon men capable and willing to operate for moderate fees. The extent to which operative procedures should be carried on in general practice could only be answered by the individual who undertook them. The advantage to the consulting surgeon would be great, as it would leave him more time for original work, and he could become a pure consultant. His aid would be sought more frequently if the patient remained under the general practitioner's care. The opinions expressed in the paper were based on between 700 and 800 operations of all kinds performed in general practice.

Treatment of Recent Injuries by Massage.

Dr. J. B. MENNELL, in a paper on this subject, recounted the good results which attended massage if properly applied. Most of the dissatisfaction which had arisen as to the treatment was due to the fact that it was not practised as described by its originator. Dr. Mennell demonstrated the correct methods both of massage and movement in cases of recent fracture.

ROYAL SOCIETY OF MEDICINE.

SURGICAL SECTION.

Tuesday, January 14th, 1913.

Mr. MAKINS, President, in the Chair.

Actinomycosis.

DR. A. G. HAYNES LOVELL recorded a case of actinomycosis primarily affecting the inferior maxilla. The disease commenced in the tooth sockets followed by an inflammatory mass attached to the jaw; after teeth extraction an exploration was made and a vaccine of actinomycosis prepared from the culture of the pus obtained. The vaccine was given every ten days and potassium iodide administered. The patient was quite cured at the end of sixteen months. The speaker claimed that actinomycosis of bone was usually secondary to infection of the overlying soft parts. Osteoporosis took place without bony thickening; the neoplastic form was rare in man but common in animals. He thought that an early diagnosis was an essential to successful treatment and that surgical interference should not be attempted until the vaccine and potassium iodide has been tried.

Mr. T. H. KELLOCK, in a paper read by Mr. PEARCE GOULD, said that actinomycosis was ubiquitous, and divided the cases into two classes, the clean and the septic; in the latter it was difficult to grow cultures. The disease usually occurred in the alimentary and respiratory tracts, especially in the salivary glands and the appendix. It was common in the lower jaw but rare in the upper, and when it did occur it started at the orifice of the parotid duct. He thought that the liver became infected directly from the duodenum. Actinomycosis of the lung spread to the chest wall; the spot in the lung was often very small and so easily overlooked. He had seen cases diagnosed as

gumma, streptococcal infection, tubercle, sarcoma, and carcinoma. The spread by direct continuity resembled malignant growths. The characteristic signs were painlessness, linear puckering, the degree of infiltration, and the small amount of pus; also the fact that the growth usually started in the openings of ducts on mucous surfaces and that it was followed by very little deformity.

Mr. A. G. R. FOULERTON compared the age and sex incidence, site of infection, and the mortality of the 76 cases of this disease that had come under his notice with the statistics given on the Continent and in Allbutt's *System of Medicine*. He found that they substantially agreed—65.4 per cent. occurred in males, 70 per cent. from the age of 15 to 35, 51.2 per cent. occurred in the mouth, tongue, and neck, 25.6 in the appendix, and 17.2 in the lungs. He divided the cases according to the kind of parasite present; most of them belonged to the mould type and spread by direct continuity; the others were a rapid blood infection leading to secondary abscesses. Actinomycosis attacked the workers amongst vegetable products; 5 of his own cases were due to passing infected cotton through the mouth. None of the cases had been diagnosed before operation and examination of the pus. Cases were often overlooked even after examination of the pus owing to the varying morphology of the parasite. He illustrated some of the forms by a series of photomicrographs, in which the coccal form was indistinguishable from tubercle.

Mr. BARKER said he had found great improvement from the injection of iodopin in one case.

Mr. WILSON reported 6 cases occurring in the appendix; 3 resembled acute appendicitis and 2 local peritonitis. In these two residual abscesses developed after appendicectomy. One formed a tumour in the caecal region and spread into the walls of the caecum without causing ulceration.

The PRESIDENT thought that everybody was liable to the disease; his experience was that the abdominal and pulmonary cases died; vaccines might in the future be able to save them.

Mr. BERRY thought that the diagnosis was extremely difficult and that the deeper forms were usually fatal. He did not agree with Dr. Lovell that surgical treatment should be postponed; the early isolated infection was the ideal for removal; scraping operations were bad.

Mr. FOULERTON, in a reply, said that up to the present only 4 cases had been reported in which a vaccine had been tried.

SECTION OF LARYNGOLOGY.

AT the meeting on January 10th, Mr. HERBERT TILLEY, who was in the chair, exhibited the chart of a patient, aged 10, with a continuous evening temperature of 100° F. for fourteen days, with slight tonsillitis and enlarged glands, which had subsided under *Vaccinal treatment*. A swab culture from the tonsil revealed *Streptococcus longus* with staphylococci. Dr. EYRE also isolated a similar streptococcus from a bladder specimen. The opsonic index was 0.72, when an autogenous vaccine from the tonsil was injected. This was followed by a reaction; 10 c.cm. of polyvalent antistreptococcic serum was injected (Lister Institute), and next day 1.25 million of autogenous bladder streptococci. The temperature, which had mounted to 103° F., subsided before the third injection of vaccine prepared from the bladder streptococci had been used. The marked improvement after the last vaccine was the feature of the case. Mr. DE SANTI suggested that the symptoms were due to a general streptococcal infection. Mr. F. J. STEWARD related similar cases with recurrence of fever. Dr. JOBSON HORNE did not attribute benefit to the vaccine. The PRESIDENT showed, in a healed condition, a case where galvanic puncture had been used in a *Tuberculous ulcer of the cord* by the direct method under cocaine. Evidence of lung trouble with tubercle bacilli in the sputum was adduced. The PRESIDENT also showed a case of *Granular congestion of the cord* the result of an ulcer which had healed under potassium iodide. In connexion with Mr. C. I. GRAHAM'S case of *Cyst of the pituitary fossa*, operation by the nasal route was discussed. The patient was admitted under Dr. Wilfred Harris with failing sight, temporal headaches, drowsiness, slow mental reaction and incontinence of urine for several months. A skiagram showed the pituitary fossa to be flattened out and enlarged. An incision was made in the middle line from the tip of the nose into the lip, splitting the columella; the greater part of the septum was removed. The mucous membrane over the sphenoid was raised, and then the anterior wall and intersinous septum removed till the pituitary fossa was opened (Cushing's method). Two drachms of fluid escaped. During the first twenty-four hours there were thirst and polyuria. The patient still suffered from defective sight, but this was improving. Dr. WILLIAM HILL said that in Cushing's operation the upper lip was turned up, and pointed out the advantage in the use of Killian's long speculum. Mr. F. J. STEWARD asked that full notes might be inserted in the *Proceedings*, as this was the first case dealt with by this procedure in England. Dr. DAN MCKENZIE said that Hirsch of Vienna had found that the advantage of this route was the diminished danger of sepsis. Mr. L. COLLEDGE exhibited two cases of *Laryngeal paralysis* due to central lesions in the vagus area, probably tuberculous in nature. The PRESIDENT recalled a case of syringomyelia in which similar signs were present. Mr. F. A. ROSE related a somewhat similar case which recovered. Dr. HEMINGTON PEGLER ascribed the lesion to pachymeningitis. Mr. S. W. BADGEROW'S case of *Congenital web of the larynx*, in which a white web was attached to the anterior two-thirds of the cord in a boy aged 6, was the subject of a prolonged discussion. The PRESIDENT described a case in which coloboma iridis was also present. Mr. C. HORSFORD recommended excision by the indirect method, but said that it was well to be prepared for tracheotomy. Dr. WILLIAM HILL recommended laryngo-fissure, kept open for one month, during which time a splint was inserted. A case of his could not do without a tube, but could speak quite well. Dr. A. S. HUTCHISON questioned the advantage of operation unless good articulation were obtained. Dr. FITZGERALD POWELL considered that such cases were best left, though Lack's tubes used after a laryngotomy gave good results. Dr. DUNDAS GRANT was of opinion that such a condition would call for tracheotomy during one of the exanthemata. Dr. E. A. PETERS'S case of *Extraordinary mobility of the tongue*, which could be passed into the post-nasal fossa, was discussed. Mr. BADGEROW indicated that irritation of the pharynx was the immediate cause of the use of the tongue. Dr. DONELAN related that suicides in slave ships were caused by passing the tongue in this manner. In commenting on a case of *Multiple papillomata of the larynx*, shown by Dr. E. A. PETERS, Mr. JOBSON HORNE suggested that it should be dealt with by the direct method, and repeated removals, if necessary, once a month. Mr. F. J. STEWARD also recommended this method, and considered the difficult age was about 2 years. At the age of 9 the tendency to recur had diminished. Mr. C. W. M. HOPE supported this view, though the resulting oedema sometimes made intubation necessary. Dr. FITZGERALD POWELL mentioned that tracheotomy alone cured some cases. Mr. F. A. ROSE had used magnesium sulphate without improvement. Dr. WILLIAM HILL said that he saw such a case every fortnight. Dr. DUNDAS GRANT said that he removed the growths as they appeared, and rubbed alcohol and salicylic acid into the base. The PRESIDENT mentioned a case of his which sprouted with papillomata even in the tracheotomy wound. This patient had undergone forty-three operations, and was seen every two to three months. Dr. WILLIAM HILL took the chair, and a case of *Soft bony growth of the antrum* in a girl of 14 years was shown by Dr. E. A. PETERS. It was opaque to transillumination, and the walls, except the palatal, bulged slightly. An artificial antrum had been scooped out of the solid mass nine months ago, and the condition was stationary. Dr. W. H. KELSON referred to similar cases in which the condition was bilateral. Mr. F. H. WESTMACOTT had met with cases which were due to a hyperplasia, instead of vacuolation of the superior maxilla; he advised gouging out of all the soft material contained in the bone, and considered the prognosis in a case so treated to be good. Mr. C. W. M. HOPE exhibited a case of unusual form of *Syphilitic laryngitis* incident during residence in Norway. The uvula, arytenoids, and superior ventricular bands were occupied by white solid swellings. The palate was not anaesthetic, but healed scars were present. Wassermann's reaction was positive, and 0.6 gram of salvarsan was given with marked reaction and subsequent

local improvement. Another similar intravenous injection was followed by another reaction. Dr. LIEVEN of Aix considered that in tertiary syphilis, owing to the diminished number of spirochaetes, 0.5 gram, or in a small patient 0.3 gram, was the correct dose. These reactions were dangerous, and had probably caused the death of many patients. In one series of early cases in which there was no glandular enlargement Wassermann's reaction became negative in 5 per cent., but this was rarely observed. Relapse in secondary cases treated by the salvarsan method were uncommon; he considered that only a few of the fatal cases had been published. Dr. JOBSON HORNE showed a case of *Dysphagia* with pain running up into the right ear, and lasting one month. The tongue was protruded to the right side and there was a fullness at the base of the tongue. A course of potassium iodide resulted in cure of the condition, which was probably due to a gumma at the base of the tongue.

SECTION OF OTOLOGY.

THE meeting of this Section on January 17th, under the presidency of Dr. DUNDAS GRANT, was devoted to a discussion on *The treatment of meningitis of otitic origin.* Dr. WILLIAM MILLIGAN, of Manchester, in opening the debate, referred to the difficulty of diagnosis and the disappointment met with in treatment in many cases of the disease. The march of surgery in conquering septic organisms gave him hope of greater success in connexion with this disease. The symptoms were headache, vomiting, stiffness of neck muscles, and increased arterial tension. The disease was not necessarily fatal provided it was diagnosed early and prompt treatment instituted. One must have courage to operate when the full series of textbook symptoms were not present. Meningitis could be divided into two groups: (1) Localized, (2) diffuse. When the infective organism reached the subdural spaces the tendency was for suppuration to be generalized. The most formidable form was purulent lepto-meningitis, that is, when the meshes of the pia arachnoid membrane were involved, and here there was often brain abscess or sinus thrombosis also. But the fact that it remained for a time localized afforded hope for operation even in this form. Increase of temperature he held to indicate the invasion of fresh areas. When the full range of textbook symptoms was present the patient was usually beyond the hope of surgery. Diminished alkalinity of the fluid denoted bacterial invasion, while an acid reaction showed that purulency had become established. Dr. Milligan proceeded to discuss the mechanism of the condition and the methods of operation, pointing out that bacteria were not found in films or cultures in the early stages of the disease. Oedema or fluffiness at the edge of the optic disc he regarded as a very important sign of the disease, and too much significance could not be attached to progressive increase of intracranial tension, which was usually accompanied by cerebral anaemia. Lumbar puncture as a therapeutic agent was of the greatest use when the fluid, though possibly turbid, was still alkaline and reduced Fehling's solution, but lumbar puncture he considered to be more a diagnostic than a therapeutic agent. When the labyrinth was the chief focus of serous meningitis he favoured a decompression operation in the posterior fossa, at some distance from the original focus, so as to avoid the risks of infection. An autogenous vaccine he regarded as merely an adjuvant. The internal ear was the most frequent avenue of infection to the meninges and the most dangerous. Dr. Milligan concluded with a historical survey and a description of the various operative procedures now employed, with especial regard to the prevention of herniation of the brain. His own records showed 37 cases of meningitis serosa with 29 recoveries and 8 fatalities. In the latter the cerebro-spinal fluid was purulent, and the decompression operation did not succeed. The PRESIDENT remarked that a similar hopeful tone was manifest concerning this grave condition at a discussion held by the German Otological Society, and there the best results were said to have followed excision of dura mater. Mr. C. E. WEST expressed his objection to the terms "meningitis serosa" and "pachymeningitis externa." In the latter case why call it meningitis at all? One did not speak of peritonitis when the seat of suppuration was outside the peritoneum. His results were not so good as those which Dr. Milligan was able to produce, probably largely because the cases were not seen early. He considered inferior vestibulotomy adequate for drainage; labyrinthectomy was an operation of unnecessary severity. Mr. SIDNEY SCOTT was not satisfied with the term "subdural"; the words "intradural" and "extradural" expressed all that was needed. He spoke highly of the operation of translabyrinthine drainage. Dr. DAN MCKENZIE emphasized the diagnostic value of pain in meningitis, as well as occipital headache in association with some rigidity of the neck. The great aspect which required attention and study was the treatment of purulent meningitis when the disease had passed the incipient stage and had entered the realm of the desperate. An important operation was multiple trephining and drainage in the neighbourhood of the base. Dr. MILLIGAN replied, and was accorded the hearty thanks of the Section.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Wednesday, January 15th, 1913.

Mr. J. M. COTTERILL, President, in the Chair.

Endemic Febrile Illness in a Boy's Industrial School.

DR. C. MCNEIL and Dr. J. P. MCGOWAN described peculiar outbreaks of endemic febrile illness in a boy's industrial school near Edinburgh which had occurred periodically for over ten years. The illness had assumed three types: Cases of acutely fatal illness terminating within forty-eight hours; a total of 20 such cases occurred in the period. Cases of irregular pneumonia; total, 51 cases. Cases of uncomplicated fever; total, 175 cases. The common features of the three types, their occurrence together in groups, their identical onset, and their similarity of clinical phenomena showed that they constituted a single morbid entity, and that an atypical or distorted pneumonia. *Post-mortem* evidence in the acutely fatal illnesses confirmed the suggestion of pneumonia. There still remained to be explained the irregular type of the pneumonia and its prevalence in epidemic and endemic character. The authors advanced the hypothesis that this was due to the pre-existence in the boys of an abnormal constitution or diathesis. A clue as to the nature of this diathesis was found in the appearances of status lymphaticus found in certain of the *post-mortem* records. This might explain the fulminant character of the fatal cases, and its existence in a less marked degree might produce the irregular features of the other non-fatal illnesses.

Professor LITTLEJOHN discussed the subject of status lymphaticus, and Dr. SHENNAN observed that his remarks emphasized the difficulty of this investigation, a difficulty which, from what Dr. McNeil had said, had evidently been deeply felt by the authors. He and several of his colleagues had conducted *post-mortem* examinations of several of the earlier cases referred to. He had examined four or five cases himself, and had concluded that the only explanation, and that not altogether a satisfactory one, was that they were probably of the nature of acute pneumococcal toxaemias. He had in several cases noted the persistent enlargement of the thymus gland and the hypertrophy of the lymphatic tissues, but had not attached the importance which the authors did to these changes, as conducing to the fatal result. This was the additional and highly important contribution made by the authors to the possible pathology of these cases. In none of his cases had he seen evidences of pneumonia sufficient to justify his classing them as cases of that disease, and supposed that the intoxication had been so profound that the patients had died before the anatomical lesions had become pronounced. He suggested that if it had been possible to employ specific agglutinating reactions the question of food poisoning could have been more definitely excluded. Dr. J. GREEN, Dr. R. J. JOHNSTONE, Mr. WADE, Dr. GOODALL, and Dr. FRASER also took part in the discussion, and Dr. MCNEIL replied.

Tuberculosis of Bone.

Mr. J. FRASER said that in differentiating human and bovine types of tubercle bacilli obtained from bone lesions the best method was the inoculation test, performed

by injecting intravenously into rabbits 0.01 gram of the culture of tubercle bacilli. Rapid emaciation and death denoted a bovine infection; continuation of health indicated a human infection. Employing the above test in 100 cases of bone and joint tuberculosis in children, the results showed a proportion of 62 per cent. due to bovine infection, of 35 per cent. to human infection, and 3 per cent. to a mixed infection of human and bovine types. With regard to the question of infected milk, in those children showing a bovine infection 73 per cent. were under 3 years of age, and had been brought up on unboiled cow's milk, while in the cases showing a human infection 71 per cent. gave a family history of tuberculosis. As to the paths of infection, it was very difficult to experimentally infect a bone with tubercle unless the marrow was first made to undergo a fibro-myxomatous degeneration; and such a marrow degeneration might result from an endarteritis of the nutrient vessel, or a tuberculous infection of the neighbouring joint. Tubercle might attack a bone as a pure diaphysitis, as an epiphysitis or as a metaphysitis. The question of epiphysitis or metaphysitis depended on whether the synovial membrane extended only as far as the epiphysis, or beyond it into the diaphysis. The stages of the pathological process in the bone began with the development of a tubercle follicle in the bone marrow. Following this, changes took place side by side in the periosteum, in the bone lamellae, in the marrow, and in the blood vessels; a thickening of the periosteum from the deposit of cancellous bone, either rarefaction or hyperostosis of the bone lamellae, fibrosis of the bone marrow, and a tuberculous endarteritis in the blood vessels. The gross pathological varieties of bone tubercle might be classed as follows: Encysted, infiltrating, atrophic, and hypertrophic. The paper was illustrated by numerous lantern slides.

Mr. STILES highly complimented the author on his paper, which was the outcome of two years' work, and only contained a fragment of that work. In almost every particular he agreed with the conclusions of the paper. The beginning of tuberculous infection in bone was a chronic endarteritis in a nutrient vessel, due to a chronic toxaemia derived from a tuberculous focus elsewhere and most probably in a gland. Tubercle rarely began in the epiphysis, and when it did so was nearly always secondary to synovial tubercle; but there were many cases of primary disease in the metaphysis. It was important to distinguish cystiform from infiltrating tubercle in the metaphysis, for the method of treatment was different, rest and immobilization being demanded in the former, and operative interference in the latter. But the great value of the paper was that it had established the source of the great majority of bone infections—tubercle-infected milk. The inspection of dairies in Scotland was scandalously inadequate; indeed, in many rural districts it was totally absent. Further discussion was postponed to the next meeting.

BRISTOL MEDICO-CHIRURGICAL SOCIETY.

AT a meeting on January 8th, Dr. WALTER SWAYNE, President, in the chair, Dr. A. J. NIXON gave a demonstration on the technique of the *Intravenous administration of neo-salvarsan*. He stated that it was necessary in syphilis to give doses at intervals of a week or less until Wassermann's reaction had become negative, and remained so for at least four weeks, four or five doses being usually required. Dr. C. W. J. BRASHER, in a paper on *Intermittent swelling of the parotid gland*, related the case of an adult female who had had attacks of acute parotid swelling at intervals for more than ten years. A vaccine of the *Micrococcus catarrhalis* grown from the interior of Stenson's duct gave a year of freedom from attacks, but the condition had since recurred. Dr. J. O. SYMES said that he had seen a boy with bilateral parotid swelling occurring every evening for some weeks following an attack of mumps, and Dr. CAREY COOMBS said that he had seen a similar condition affecting the submaxillary glands. Dr. R. S. S. STATHAM showed a specimen of primary *Rupture of the pregnant uterus before labour*. When the patient, who was eight months pregnant, was first seen it was thought to be a case of concealed accidental haemorrhage, but laparotomy revealed an extensive rupture of the uterus and the child free in the peritoneal cavity. She had been curetted a year previously for a septic abortion, and no other cause could be found. Dr. F. H. EDGEWORTH related a case in which *Phosphaturia and oxaluria* alternated, the latter condition being accompanied by renal colic and haematuria. The condition was cured by more complete mastication, the patient having previously bolted his food. Dr. BRASHER mentioned a case of oxaluria accompanied by haematuria and renal colic.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.

AT a meeting on January 17th, the PRESIDENT (Dr. Dobson) in the chair, Mr. ALEXANDER D. SHARP showed a number of *Skiagrams of the mastoid area*. A bismuth plug had been placed in the external auditory meatus before sending the patient to the radiographer. A very distinct outline of the canal appeared on the negative. This formed a useful guide to the mastoid antrum, lateral sinus, etc., and simplified the interpretation of the plate. In some cases it might be more useful to smear the drumhead only with the bismuth paste. Mr. HAYES showed a case in which there had been a five months' history of *Oesophageal obstruction*. A diagnosis of oesophageal epithelioma was made, and this was confirmed by the oesophagoscope. An operation was performed by Mr. J. F. Dobson, and the growth, which was an extensive one, successfully removed, the upper end of the cut oesophagus being sutured to the skin. The specimen was also shown. Mr. J. F. DOBSON exhibited some cases showing the advantage of "block" dissection in the *Removal of cervical glands* for malignant disease. Cases were also shown by Dr. VINING, Dr. BRONNER, Mr. WALTER THOMPSON, Mr. BASIL HALL, Mr. LITTLEWOOD, Dr. TELLING, Dr. GRIFFITH, and Dr. OLDFIELD. A paper was read by Dr. CARLTON OLDFIELD on *Obstetric surgery, its uses and limitations*. He discussed the treatment of eclampsia, comparing the surgical methods of simple induction of labour and of vaginal and abdominal Caesarean section with expectant and therapeutic measures. Pernicious vomiting of pregnancy he regarded as a neurosis, and advocated treatment by full feeding and suggestion. As a rule, surgical interference was not indicated in this condition, nor was it in fibroid tumours or in pyelitis complicating pregnancy. The necessity in some cases for cranioclasty and decapitation was deplored. The need for these could usually be avoided by examination during pregnancy, when Caesarean section would be indicated.

LIVERPOOL MEDICAL INSTITUTION.

AT a meeting on January 9th, Mr. ROBERT JONES, President, in the chair, Mr. C. A. ADAIR-DIGHTON, in a paper on *Cavernous sinus thrombosis*, reported two cases. The first was a girl, aged 13, who had had a mastoid abscess on the right side. After the radical operation on the mastoid the girl did well for a week. Then her temperature ran up, she had rigors, with exophthalmos, drooping of the eyelids, with haziness of the cornea and optic neuritis. The right internal jugular vein was ligatured close to the clavicle and dissected up to the mastoid. The lateral sinus was exposed, curetted, and a current of fluid passed through it. Multivalent serum was administered. She made a good recovery, after showing signs of septic synovitis in several joints. The second case was a boy, aged 6. In this case the trouble arose from the nasal region, the right orbit being affected. The superior bony wall of the orbit was removed, the frontal lobe elevated, the cavernous sinus curetted, and a rubber drain introduced. The child died of acute meningitis. Mr. R. E. KELLY showed a case of *Suture of the crucial ligaments of the knee*. The patient, a carter, aged 33, had been kicked on the outer side of the knee while the joint was extended, a portion of the skin on the inner side being caught as a fold between the ends of the tibia and femur. There was extreme mobility of the joint, which could be dislocated backwards and replaced easily. The leg was put up in a Thomas's knee splint for five days. Then Mr. Kelly opened the joint by a long horizontal incision. The crucial ligaments and the internal lateral ligament were sutured with thirty-day catgut. The wound was closed and the leg kept at rest on a

Thomas's splint for three months. The PRESIDENT, after congratulating Mr. Kelly on the result, said he had seen several cases of this injury recover without operation when fixed on a splint at once. Mr. RUSHTON PARKER also thought that though the result justified the operation in this case, in most cases immediate fixation was the most important point in treatment. Mr. G. C. E. SIMPSON related a case where he had started treatment four months after the injury, with the result that after six months of splint treatment there was still a flail joint. Mr. G. C. E. SIMPSON, in a paper on *Congenital anomalies of the umbilicus*, described 3 cases of laparotomy for congenital exomphalos. In one the major part of the liver was included in the sac. The other two cases were successful. In 2 cases of ectopia the trigone of the bladder had been implanted into the sigmoid portion of the large intestine. The one lived for four months, dying from pyelitis. The other died from the shock of the operation. The anomalies of the urachus were discussed and a case of urachal umbilical polypus was described. Cases of umbilical polypi due to abnormalities of the Vitelline duct were considered. Four had been treated with success. The results of a Meckel's diverticulum was illustrated in various forms.

Reviews.

RADIO-ACTIVE SUBSTANCES.

ANY person who, though not engaged in the pursuit of pure science, yet has a grasp of the principles of scientific method, experiences keen intellectual pleasure in following an account given by a master of his subject of the way in which a new field of science has been entered, explored, and, as to its broad features at least, mapped out. Such a pleasure is in store for such persons who possess themselves of Professor RUTHERFORD'S new volume, *Radio-active Substances and their Radiations*.[1] We refer in particular to Chapter I, on radio-active substances, to Chapter VIII, on the continuous production and decay of radio-active matter, to Chapter XI, on the theory of successive transformations, to Chapter XVIII, in which the general results and relations are summed up, and to Chapter XIX, in which the radio-activity of the earth and atmosphere are discussed. These contain the general map of the new world which is being explored. The general methods of the exploration are explained in chapters on the ionization of gases and on methods of measurement, and details are filled in by others on the alpha, beta, and gamma rays respectively, on the properties of radiations, on radio-active gases and active deposits, and on uranium, ionium, and the origin of radium. Two chapters are given to radium and its emanation and active deposit, and these are followed by others on actinium and thorium and their products, and on the production of helium and the emission of heat.

In dealing with each subject the historical method is followed. That is to say, an account is first given of the manner in which the knowledge of the subject has been developed, and the data are then discussed in all their bearings.

Professor Rutherford's style is in general so perspicuous that the reader is left with the conviction that where some ambiguity or uncertainty seems to exist it is due not to any defect of expression, but to the circumstance that the facts have not yet been fully ascertained, or brought into relation with others which have been fully established.

It is true that the mathematical discussions which fill many pages in almost every chapter may present a formidable appearance to such as are not endowed with the mathematical faculty. But if they are content to accept these discussions as beyond suspicion, as safely they may, and pass on to the conclusion of each matter, they will find no difficulty in understanding the significance of the results and their relations.

The book, therefore, attains the rare success of appealing both to the specialist and to the generality. The detailed description of methods of experiment, the full mathematical discussions, and the copious references will make it invaluable to the former, while the clearness of statement and the logical sequence observed in the development of the subject and each of its parts will fascinate the latter.

The book is a masterpiece, and we would strongly commend its study to all those who desire to gain an intelligent appreciation of a new department of science intensely interesting in itself, and possessing for medical men the special attraction that one of its technical applications may have an important influence on the development of their art. The science itself is still young. The radio-activity of uranium was only discovered by Becquerel in 1896. The existence of radium was established by M. and Mme. Curie two years later, and since then an enormous amount of work has been done by an army of workers, one of the chief of whom has been the author of this work. But the therapeutic application of radio-active matter is still in its infancy. The theory of radio-activity is complex and not yet fully elucidated; the theory of living matter and its disorders is even more complex, and still less understood, and Professor Rutherford refrains from more than the briefest reference to the physiological action of radio-active substances.

[1] *Radio-active Substances and their Radiations.* By Professor E. Rutherford. Cambridge: University Press. 1913. (Demy 8vo. pp. 706; figs. 131. 16s. net.)

THE BLOOD IN DISEASE.

THE volume on *The Blood*,[2] by Drs. GULLAND and GOODALL of Edinburgh forms a notable addition to the list of monographs dealing with diseases which influence the blood in such a way as to render their detection certain in some cases and probable in others. The research and learning of its two authors and the richness of the clinical opportunities from which they have drawn their conclusions justify the opinion we express that it will for a long time be an authoritative guide to a most difficult but important medical subject.

It is divided into five parts, and concerns itself with those studies which have to do with every departure of the blood from the normal, with one exception. That exception is the bacteriological aspect of blood diseases and all that its study implies, such as the investigation of the effects of bacterial antigens, of the immune and anaphylactic reactions to such agents, and with the curative methods which have been devised to combat infection, through the mechanism of various antibodies. Only half a page is given to the bacteriological examination of the blood, and this closes with a reference for further information to bacteriological treatises. Lest this remark should damp the reader's inclination to peruse the work, it is only necessary to say that the rest of the volume is packed full of information on problems connected with the blood, which no student of medicine, however much impressed with the importance of infection, can ignore. All that can be hoped for is that the authors some day will give the medical profession another such volume dealing with those changes in the blood which are intimately connected with bacteriological study, and on lines as thorough, as scientific, and as useful as are followed in this work.

The first 46 pages deal with the examination of the blood by methods which have been thoroughly tested and approved by experience, and include those which are of far-reaching importance, as the methods of Haldane and Lorrain Smith for estimating the haemoglobin content, and the colouring methods advocated by Pappenheim, Leishman, and others. The second part of the volume is devoted to a study of the formed elements of the blood, and if the reader would like to test the reserve and practical-mindedness of the writers we would commend this section to his notice, for they have made the descriptions as simple as possible, and have avoided the excesses of differentiation and nomenclature in which German workers, who are the chief offenders, have indulged. Chapters XI, XII, and XIII (dealing with the blood in animals, with the histology of the marrow, and with the development of the cells of the blood) will serve to show the thorough-going and broad-minded attitude of the

[2] *The Blood: A Guide to its Examination and to the Diagnosis and Treatment of its Diseases.* By G Lovell Gulland, M.A., B Sc., M.D., F.R.C.P.E., Physician to the Royal Infirmary and to the Royal Victoria Hospital for Consumption, Honorary Physician to Chalmers Hospital, Lecturer on Medicine at Surgeons' Hall, Edinburgh; and Alexander Goodall, M.D., F.R.C.P.E., Lecturer on Physiology and on Practical Medicine at Surgeons' Hall, and on Diseases of the Blood in the Edinburgh Post-Graduate Courses in Medicine. Edinburgh and London: William Green and Sons. 1912. (Roy. 8vo, pp. 358; figs. 16, coloured plates 16. 15s. net.)

authors towards problems which will almost certainly find their full solution only in comparative pathological study and in embryology. The third part is devoted to a study of the blood, of the bone marrow, and of the lymphoid tissues in disease, and, as we have already said, in some of these the blood examination yields results which make diagnosis possible; whereas in others it fails, or succeeds only when taken in conjunction with other data independent of blood examination. The chapters dealing with haemophilia and congenital family cholaemia are of special interest and importance, containing as they do reference to recent work on these subjects. The condition known as status lymphaticus, which presents so serious a stumbling-block to the clinician and the pathologist, receives adequate treatment so far as is possible in the present uncertainty of opinion even as to its existence. Part IV is devoted to a study of the cytological changes of the blood in special infectious diseases, and is the least satisfactory of the volume, for it is wanting in that pointedness which would have been given had it been accompanied by what we have already expressed we hope will follow, a study of the bacteriological side of the questions discussed. The fifth and final part is devoted to a study of the animal parasites of the blood, such as cause malaria, kala-azar, sleeping sickness, relapsing fever, and filariasis. There is a very complete index, and the excellent coloured plates deserve high praise.

AFTER-RESULTS OF ABDOMINAL OPERATIONS.

IN collecting and reprinting his papers on the *After-results of Abdominal Operations*,[3] contributed to the *Journal of Obstetrics and Gynaecology of the British Empire*, Dr. ARTHUR GILES has rendered a service to surgery of no little importance. During ten years he has spent much time and trouble in following up the whole of the cases operated on before July, 1909. The statistics refer to operations upon the female generative organs only; 80 per cent. of all cases have been traced and investigated. It is notable that the operative mortality is only 4 per cent., but the detailed inquiry into the after-history of all these cases—revealing as it does somewhere about 60 or 70 per cent. of complete restoration to health—should enable both surgeon and patient to take heart of grace. Moreover, the 30 per cent. of women, previously suffering from the effects of diseased or damaged organs, who recovered without complete restoration to health, were by no means badly off; the majority of them found themselves, and declared themselves, very much better off than they were before operation.

All the conclusions to be deduced from the results of these consecutive inquiries are worth consideration, but it is only possible here to select casually a few. Dr. Giles thinks that "soiling of the peritoneal cavity with the contents of an ovarian cyst favours the occurrence of later disease, and therefore the interests of the patients are safeguarded by the removal of these cysts (however large) intact, without tapping." It would appear that removal of the appendages of one side involves a liability to the occurrence of extrauterine pregnancy. Removal of both tubes and ovaries has no marked detrimental effect on the subsequent health; the influence of the artificial menopause in causing mental depression is relatively small. The fate of the cervical stump after supravaginal hysterectomy need cause no apprehension; amongst 181 cases there was no instance of malignancy and practically no trouble of any sort.

The period of invalidism after this class of abdominal operations is less than three months in 60 per cent. of cases, and very rarely lasts beyond twelve months even in women well on in years. With this class of operations as with those elsewhere, it is found that the severity of the operation itself is not the most important factor in determining the period of convalescence. Dr. Giles has noticed some deterioration of the memory in as many as 20 per cent. of his cases, and thinks it was more marked in proportion to the duration of the operation; it would thus appear to be a result of the anaesthetic intoxication; if this be the case it should be recognizable equally after other than pelvic operations, but is it so?

This is a book that should be in constant requisition in every library, and one that no surgeon should neglect. It is so liberally documented that even the sceptical public may well accept its reassuring statements; to be operated upon is, after all, not to bid farewell to normal health and happiness!

[3] *A Study of the After-results of Abdominal Operations on the Pelvic Organs.* By Arthur E. Giles, M.D., F.R.C.S. London: Bailliere, Tindall, and Cox. (Med. 8vo, pp. 262. 10s. 6d.)

ENZYMES.

IT has been truly said that the fundamental training of a physician should be that course of study which makes of him a good biologist. This newer conception is of comparatively recent date, and some of us can remember when medicine was an affair of chemistry—not of biochemistry, but of that "inorganic" order which sought to cure epilepsy with silver and bronchitis with antimony. Gradually bacteriology came to the front, and we now seem to have reached another period of development—bacteria are not the ultimate recognizable elements of disease, but both bacteria and animal cells are found to exert their influence by means of unorganized agencies which can only be recognized by the product of their activities—ferments or enzymes. Professor COHNHEIM has contrived in the small compass of his book on *Enzymes*[4] to give a survey of the subject which will provide the reader with much information. The book, which has been presented in English with great skill by Dr. W. B. Cannon, practically divides itself into three parts. The first is concerned with the study of those fourteen or eighteen enzymes, hydrolytic in character, the seat of origin and operation of which is the alimentary canal, including the doubtfully digestive ferment found in the liver and intestine—arginase. To the physiologist concerned in the processes of assimilation such ferments are of the greatest importance, and no doubt in the future more will be heard from the pathologist of those clinical conditions which represent disturbed action of these ferments. A second section, introduced in Chapter XXI, deals with those enzymes the activities of which are directed not to the preparation of foods for mere absorption, but for the far more important function of extracting from such absorbed foods the energy which gives birth to the heat of the body on the one hand, and that power of movement which is an essential in all animal life. The animal body by means of these metabolism-enzymes is rendered the most perfect engine known, for it makes mechanical use of 30 per cent. of the energy represented by the food intake, and the best engineering skill can make use of not more than 10 to 13 per cent. of the total potential energy of the fuel used in steam engines for mechanical purposes. A subsection of the discussion on metabolism-enzymes has to do with the important autolytic enzymes, that is, with ferments which are not yet clearly shown to have any anabolic or katabolic importance, but which come into operation in molar and molecular death of the individual, and are possibly responsible for those wholesale losses of parenchyma seen in cases of arterial occlusion—for example, infarction of various organs.

The third and last section deals with ferments which subserve neither assimilation of food and its internal combustion, nor the removal of tissues no longer capable of surviving. The fibrin ferments represent a group of agencies which in evolution have been found necessary for the protection of the life of the individual. When a blood vessel is opened by accident or by biological activity, here are agents whose function is purely therapeutic, namely, the duty of stopping haemorrhage. Scarcely less interesting is the discovery by Professor Cohnheim himself of the first-known metabolism-enzyme, namely, the ferment which attacks sugar and is due to the conjunction of two agents derived from two different kinds of tissues—muscle and pancreas. A full index to subjects and authors closes a book which is of first-rate importance to biologists.

THE PROSTATE.

PROFESSOR VON FRISCH'S monograph on the diseases of the prostate[5] is one rather for the genito-urinary expert than

[4] *Enzymes.* By Otto Cohnheim, Extraordinary Professor of Physiology, Heidelberg. Six lectures delivered under the Herter Lectureship Foundation at the University and Bellevue Hospital Medical College (1910). First edition. New York: John Wiley and Sons; London: Chapman and Hall, Ltd. 1912. (Cr. 8vo, pp. 180. 6s. 6d. net.)

[5] *Die Krankheiten der Prostate.* Von Dr. A. von Frisch. Second edition. Vienna and Leipzig: A. Hölder. 1910. (Sup. roy, 8vo, pp. 305, Mk. 6.50.)

for the practitioner. It has a bibliography of thirty pages, and is so fully bedecked in the text with the names of those who have written on the subject, whether exhaustively or casually, that it is a little difficult at times to see the forest for the trees; it is difficult to arrive at the proper views of the author himself. The whole field is traversed, from anatomy, through physiology—including a discussion of the vexed question of the real function of the prostatic secretion, and the even more obscure question of the nature of the internal secretion—to etiology and pathology in their various aspects. One or two points are easily demonstrated. For example, the author confirms the opinion of Sir Henry Thompson that no one of the multitude of etiological factors assumed or asserted as the *fons et origo* of prostatic hypertrophy has any claim to pre-eminence, least of all gonorrhoea; sexual excess no more than continence. Almost positive, too, is the author's assurance that prostatorrhoea is not a constant or even common symptom of chronic prostatitis. It will be gathered that Professor von Frisch is more interested in the pathogeny and the symptomatology of the prostate when it is stated that the pages devoted to total enucleation of the organ are fewer by far than those expended on discussions of the worth and mode of action of the various "indirect" methods of effecting atrophy or regression. There is, of course, an enormous amount of information in the book, ranging over all forms of acute and chronic inflammation to tuberculosis (with no reference, however, that we have detected, to its occurrence in very young children), concretions, and new growths, and, lastly, parasitic affections such as echinococcus cysts. It is a book for reference, not only as to theories of origin, but also as to the manifold methods of instrumental and other forms of treatment which the diseased organ has suffered.

Dr. KARO'S book on the pathology and treatment of hypertrophy of the prostate[6] is a small monograph intended for doctors and students. It contains nothing new on the subject, but what it does contain of facts well known to the specialist is clearly and attractively set out. Only when it comes to deal with hypotheses is it found wanting. It starts with a long exposition of the latest hypothesis which is fashionable in Germany, namely, that the prostate produces a "hormone" which is supposed to activate the bladder nerves (*sic*). It is this hypothesis which dominates the whole essay, but to support it not one single fact is brought forward which appears to us to pass muster. Accepting this hypothesis, the author proceeds to detail certain cases of so-called "prostatism without residual urine and without enlargement of the gland," in which he claims to have obtained a complete cure by injections of testiculin and yohimbin. We fail to see the connexion between the theory and the practice. It would be interesting to know why the average German writer at the present time wilfully refuses to recognize French and English work. To take one instance from many out of this book, Karo enunciates a now well recognized fact that the only part of the prostate which undergoes "hypertrophy" is that part which lies between the urethra and the ejaculatory ducts, and that in prostatectomy a certain part of the prostate is not removed, nor are the ejaculatory ducts torn. We could overlook the fact that this was pointed out a good many years ago in a book by Wallace of St. Thomas's Hospital, but we cannot overlook the fact that these propositions were elaborated in an admirable and very complete article in German by Marion, a Frenchman, in the *Zeitschrift für Urologie*, Bd. 5, No. 8, 1911, exactly one month before the article which Karo calls classical of Tandler and Zuckerkandl in the *Folia Urologica*. Yet Karo overlooks the article of Marion, and writes as if Tandler were the first to point to the facts. Science should know no frontiers.

TEXTBOOKS OF PHYSIOLOGY.

PROFESSOR SCHÄFER has written a little practical book on *Experimental Physiology*[7] in the same clear style and with the same excellency of arrangement which characterizes his well known *Essentials of Histology*, a book familiar to every student of medicine. The book before us is illustrated with eighty-three excellent figures and is founded on twelve years' experience of classes at Edinburgh. The electrical circuits and frog muscle and heart preparations are particularly well figured, and the text suffices to give the student a clear and succinct account of the work he has to do in each practical lesson. The exercises chosen are mostly of the old familiar type such as have become traditional in physiological laboratories, but we note among the demonstrations an interesting and novel experiment on the lactating mammae by which is demonstrated the fact that a decoction of corpus luteum or posterior lobe of pituitary body causes a rapid flow of milk.

HERMANN'S *Lehrbuch der Physiologie*[8] has reached its fourteenth edition and has been revised and enlarged by the learned author. The continued popularity of this work must depend on its containing such a summary of physiological science as can be crammed up by the student or referred to by the practitioner, for the work is remarkable for dullness, and is not written in such a way as to inspire the reader or give him any love for the science. We note very little reference to English work. Thus, in the section on reflex action we look in vain for the fundamental researches of Sherrington. In that on the circulation we find no mention of Bayliss's researches which prove that vaso-dilator nerves to the skin run in the posterior roots, or to the researches of Leonard Hill on the influence of posture on the circulation. In this latter respect an erroneous research carried out by two pupils of the author is alone cited. In the section dealing with speech there will be found an account of Hermann's phonographic records of vowels and consonants. The physics of physiology are dealt with particularly well by the author, and in all the physical sections this work may be consulted with advantage.

HEATING AND VENTILATION.

NOTWITHSTANDING the great amount of attention which has been paid in recent years to the question of the ventilation and warming of dwelling houses and of public buildings there is still a vast amount of ignorance displayed by those who are called upon to carry out practical schemes. A great deal of that ignorance would be dispelled by a careful and intelligent perusal of Mr. A. H. BARKER'S work on the *Theory and Practice of Heating and Ventilation*[9] which deals with the whole subject in an elaborate and masterly manner. The author has studied the many difficult problems, which he admits exist, both scientifically and practically, and he is able to show how many of them may be solved. Although a large portion of the book deals with technical matters of interest primarily to engineers there is still much to be learnt from it by those less expert. For example, the chapter on heating by fireplaces and stoves contains a very clear account of both these methods of warming a room. Among the disadvantages of an open fire as a means of heating Mr. Barker places first its inefficiency, which he considers to be not more than one-fifth or one-sixth of that of a system of heating by radiators for an approximately equal effect. Moreover, it causes an immense amount of labour in carrying fuel and in the removal of ashes, while in addition a great deal of dust is produced. For an ordinary sitting-room he considers that, if no regard is to be had to the initial cost or to the cost of upkeep, the most satisfactory method of warming is by a combination of open fires and radiators. The chapter dealing with the plenum system of ventilation is a very clear exposition of the subject dealt with, and although the author is evidently favourably disposed towards this method of ventilating he has considered it in a very fair and impartial manner.

[6] *Die Prostatahypertrophie. Ihre Pathologie und Therapie.* By Dr. med Wilhelm Karo. Berlin: Oscar Coblentz. 1912. (Cr. 8vo, pp. 50. Mk 1.60.)

[7] *Experimental Physiology.* By Professor E. A. Schäfer, F.R.S. London: Longmans, Green and Co. 1912. (Med. 8vo, pp. 120; figures 83. 4s. 6d. net.)

[8] *Lehrbuch der Physiologie.* By L. Hermann. Fourteenth edition. Berlin: A. Hirschwald. (Roy. 8vo, pp. 800; figs. 274. Mk. 18.)

[9] *The Theory and Practice of Heating and Ventilation.* By A. H. Barker, B.Sc., B.A. London: The Carton Press. 1912. (Sup. roy. 8vo. pp. 732; illustrations 142. 21s. net.)

NOTES ON BOOKS.

DR. R. C. MACFIE is among the latest contributors to the flood of neo-vitalist speculation, of which Professor Bergson's philosophy is a prominent example. In *Heredity, Evolution, and Vitalism*[1] he deals with "some of the discoveries of modern research into these matters, their trend and significance." He has evidently given considerable study and thought to the subject, and he writes in a style that may be commended as both scholarly and picturesque, though obscure in parts. He deals first with the morphology and chemistry of the cell, development, the various more or less conflicting theories of heredity, and such cognate problems as the transmission of acquired characters and the determination of sex. Medical readers will here find themselves on familiar ground, and will doubtless appreciate the ability of the exposition, as well as the acuteness of the criticsm evoked by the consideration of controversial points. But we fear that the uninstructed—and the book purports to make a general appeal—will find the author's treatment too condensed and technical for their powers. In the last few chapters Dr. Macfie comes to grips with his main problem—the bearing of recent discoveries upon the theory of continuous evolution, and especially upon Darwinism. He is pronouncedly anti-Darwinian; for him the publication, or at all events the ultimate acceptance by the scientific world, of the *Origin of Species* was "a spiritual disaster," the victory of the evolutionists "a matter for tears." With Professor Pflüger, he regards vital force as a specially embodied energy of thermal nature and origin, rejecting the view that life has been built up from or is explicable in terms of the inorganic. Dr. Macfie is sceptical as to the common origin of life and the simian ancestry of man. His alternative hypotheses are interesting, but would have been more effectively presented if he had more clearly defined to himself the quality of the audience he wished to address. In any return to the subject it would be well to adopt a method either frankly popular, or taking for granted much of such doubtfully relevant information as he has compressed into this volume.

Mr. W. H. WHITE'S *Handbook of Physics*[2] is one to which unqualified praise can be given. Although it is written avowedly to cover the ground required for the intermediate examinations of the universities, and the author has not thought it *infra dig.* to distinguish by a particular mark those paragraphs with which medical students need not concern themselves if they only wish to do what is required for their examinations, yet it is as far as possible from being a mere cram book. The matter is presented with great economy of words, but the author succeeds in being more and not less interesting from the terseness of his explanations. The subjects of mechanics, heat, light, sound, magnetism, and electricity are dealt with, and each chapter is followed by questions selected from the examination papers of various universities. Mr. White is lecturer on physics at St. Mary's Hospital Medical School, and medical students will find his book an excellent one.

Captain J. W. S. SECCOMBE'S *Bacteriologist's Aid to Memory*[3] is a compilation from standard works on bacteriology. It is a large sheet, upon which are arranged in tabular form the chief cultural, morphological, and pathogenic characters of the chief races of micro-organisms. The information is accurate, but most of it would be quite superfluous to any competent bacteriologist. It may be useful to clinical pathologists of little experience, or to those who are preparing for examinations.

The twenty-third volume of the *Transactions of the American Pediatric Society*[4] relates to its meeting in the summer of 1911. Among the thirty-six papers read and discussed were four dealing with metabolism in children, and five with cases of epidemic anterior poliomyelitis, including a brief report on the subject presented by a special committee which had been appointed to consider the subject on behalf of the society. Among its recommendations was the application of strict quarantine measures for at least a month to every case and the exclusion of children belonging to infected households from schools. A case of diabetes mellitus in a child aged 7 months was recorded by Drs. P. J. Eaton and E. B. Woods, and a careful clinical and pathological study of amyotonia congenita was presented by Drs. J. P. Crozier Griffith and W. G. Spiller. Three authors, including Drs. Henry Koplik and Francis Huber, dealt with the special problems of ward arrangement and administration created by the needs of children; and Professor E. E. Graham recorded in detail his experience with the vaccine treatment of 24 cases of whooping-cough. It justified, in his opinion, a more extensive trial of vaccine treatment in this disease. The volume is edited by Dr. L. E. L. Fétra.

The first English translation of DIEULAFOY'S *Textbook of Medicine*[5] was based on the fifteenth French edition, and met with considerable success on its publication some two years ago. A further translation by the same workers, Dr. V. E. COLLINS and Mr. J. D. LIEBMANN, Ph.D., LL.D., is based on the sixteenth edition, which appeared only a few days before the lamented death of Professor Dieulafoy in the autumn of 1911. That edition contained a considerable amount of new matter, so that the present volume is more up to date than its predecessor. Vaccines, the opsonic index, the Wassermann reaction, and salvarsan all receive notice, while there are also sections dealing with various syphilitic and parasyphilitic phenomena, gonococcic septicaemia, and haemolytic icterus. Nothing could destroy the attraction of the clarity of thought which helped to win for Professor Dieulafoy his great popularity as a writer, and the translators have at times managed to reproduce something of the charm of the idiomatic phraseology of the original work.

MEDICAL AND SURGICAL APPLIANCES.

Apparatus for the Extension of Fractures of the Tibia during Plating and Screwing Operations.

MR. LAWRIE MCGAVIN, F.R.C.S. (London), writes: The difficulty of bringing into apposition the overriding fragments in fractures of the tibia when operations are undertaken for the screwing or plating of this bone are well known to all surgeons. This difficulty is especially marked in old-standing fractures which, in spite of the manipulative skill which will often overcome the displacement in *recent* injuries, are frequently impossible to reduce without the exertion of considerable leverage and force. To overcome this difficulty I have recently devised the extension apparatus shown in the accompanying photograph, which I have found of great assistance.

The apparatus is placed upon the operating table, and the patient's knee being flexed, the limb is placed upon it, the thigh being strapped to the thigh piece. The foot,

well padded with wool and bandaged, is placed in the boot, which is laced up, and the straps lying over the malleoli are drawn tight. The ring in the sole of the boot is now placed in the swivel which is attached to the end of the extension screw, the thread of which is very fine, when, by screwing this up tight, the bones are brought into accurate alignment and can be plated with the greatest ease upon the apparatus. The apparatus, covered by sterilized towels, thus takes the place of the operating table, and is adjustable to suit varying lengths of femur and tibia.

This method does away with the irregularity of manual traction, which makes the operation so prolonged and difficult in old cases, as well as with the necessity for introducing levers between the broken ends, which so frequently results in bruising and cracking of the bones and stripping of the periosteum. The apparatus has been made for me by Messrs. Allen and Hanbury, who will be pleased to demonstrate its use to any surgeon.

[1] *Heredity, Evolution, and Vitalism.* By Ronald Campbell Macfie, M.A., M.B., C.M. Bristol: John Wright and Sons. London: Simpkin, Marshall, Hamilton, and Kent. 1912. (Demy 8vo, pp. 302. 6s. net.)

[2] *A Handbook of Physics.* By W. H. White, M.A., B.Sc., A.R.C.Sc. London: Methuen and Co. 1912. (Crown 8vo, pp. 680; 341 diagrams. 7s. 6d.)

[3] *The Bacteriologist's Aid to Memory.* By Capt. J. W. S. Seccombe, R.A.M.C. A handy reference sheet for the laboratory. London: J. Bale, Sons, and Danielsson. 1910. (3s. 6d.; on linen, 4s. 6d.; with rollers, 5s. 6d.)

[4] *Transactions of the American Pediatric Society.* Vol. xxiii. (Roy. 8vo, pp. 395.)

[5] *A Textbook of Medicine.* By G. Dieulafoy. Second edition, translated from the sixteenth French edition by V. E. Collins, M.D.Lond., and J. D. Liebmann, Ph.D., M.A., LL.D. In two vols. London: Baillière, Tindall and Cox. 1912. (Roy. 8vo, pp. 2180; plates 9; figs. 100. Price 25s. net.)

THE PARLIAMENTARY COMMITTEE ON PROPRIETARY REMEDIES.

THE Select Committee appointed to inquire into the sale and advertisement of proprietary medicines resumed its sittings at the House of Commons on January 16th.

The Chairman (Sir Henry Norman) mentioned a case to which the attention of the Committee had been called by a member of the public of an alleged clergyman advertising his willingness to send inquirers a free cure for epilepsy. The method was to forward a prescription, accompanying it with a letter advising the recipient to obtain the principal ingredient from a manufacturing chemist whose premises were in the same town in Cheshire as that in which the "clergyman" resided. Whereas the ordinary price of the ingredient in question was from 2s. to 3s. 8d. per pound, 16s. per pound was charged by the chemist. Inquiries of the local police revealed the fact that the "clergyman's" letters emanated from the address of the manufacturing chemist, and as a matter of fact no clergyman had ever lived there within the knowledge of the police.

PROPRIETARY ARTICLES SECTION, LONDON CHAMBER OF COMMERCE.

Evidence was then given by Mr. E. S. Waring, of Nottingham, a Director of the business of Boots Cash Chemists, who attended at the request of the Proprietary Articles Section of the London Chamber of Commerce. He stated that from his experience, 121 out of the 269 preparations mentioned in *Secret Remedies* and *More Secret Remedies* had no sale whatever; most of them he had never before heard of, and some he knew were dead. Of the remainder, 57 had a very poor, intermittent sale, 12 had a fair sale, 23 a good sale, 25 a very good sale, and 30 a very large sale. He did not consider the prices charged for proprietary medicines to be unreasonable; a chemist would charge 1s. 6d. for making up a box of 56 pills similar to those for which the proprietary medicine vendor charged 1s. 1½d. Proprietary articles which did not impress the public as having real merit died out rapidly. He did not think the interests of the public would be served by the publication on the label of the name of a poison contained in a proprietary medicine; the tendency would be for the victims of certain drugs to buy the medicine for the sake of the drug contained. He was strongly opposed on behalf of the retail trade to any publication of formulae. It would lead people to purchase the ingredients separately and attempt to compound the medicines themselves—perhaps with disastrous results. Publication of formulae would lead to unfair competition; a preparation would be advertised as "according to the formulae" of some well-established remedy.

Sir Philip Magnus: They can do that now from the publication of the formula in *Secret Remedies*.

The Witness: Assuming that it is the correct formula.

Sir Philip Magnus: It is probably as correct as any formula that could be put on the label of a bottle of medicine.

Continuing, the witness said he was in sympathy with any restriction of the improper sale of abortifacients, and he mentioned the steps taken by his firm to prevent abuse in this matter. The witness gave a list of sixteen proprietary articles which, from inquiries at 105 shops of Boots Cash Chemists, he found to be prescribed by doctors.

The list was not fully disclosed, but the Chairman remarked that a good many of them were not secret remedies of the class the Committee had been dealing with.

Mr. Newton examined the witness at some length with regard to preparations manufactured by his firm for female ailments and for gonorrhoea. The witness said this was a legitimate business done by chemists of all classes.

The witness agreed with Mr. Glyn Jones that not much harm would be done if the law prohibited the sale of anything advertised for the treatment in any way of women's functional troubles. He admitted that the traffic in these preparations was large and had serious results.

In reply to Mr. Bathurst, the witness expressed the view that medical men were largely influenced to prescribe proprietary medicines by the advertisement of these in the medical journals. As to the publication of the name of a poisonous ingredient, the witness admitted that there were not many proprietary preparations containing a sufficient quantity of a deleterious drug to make it worth while for a victim of a drug habit to take the preparation. The witness agreed that the advertisement of preparations purporting to cure incurable complaints should be prohibited by law.

The witness was also questioned with regard to a preparation for gonorrhoea manufactured by his firm, but sold under another name, Messrs. Boots being described as agents.

The Chairman said the witness had used the word "legitimate" several times in the course of his evidence. Did he think it legitimate to sell a medicine bearing on its label a guarantee of genuineness signed in the "facsimile" signature of a non-existent person? The witness replied that he considered it quite legitimate. This was a business that his firm had purchased.

The Chairman: I do not remember any reference by you to the admittedly fraudulent large class of proprietary medicines. You alone of all the witnesses called have not alluded to this.

The Witness: I am sorry I did not say anything about it. There is such a class of medicine; it is advertised through the post mainly. It is desirable that these preparations should be dealt with by legislation.

MOTOR CARS FOR MEDICAL MEN.

SMALL CARS.

THE Clement Bayard Company of Levallois, Paris, has recently opened an agency in London (98, High Street, Marylebone) for the sale of certain cars which are to be known under the title of the Bayard. They appear to have been brought out in answer to the demand for small cars with multiple cylinders, but otherwise of simple construction. The cars now being marketed are in three sizes—8 h.p., 10 h.p., 14 h.p. They all have four cylinders cast in monobloc form, chassis of pressed steel, Bosch magneto ignition, thermo-syphon cooling, automatic pump lubrication, leather cone clutches, and four speeds, including reverse. The transmission is by a Carden shaft enclosed in a torque tube carried back to a bevel-driven back axle. The brakes are foot brakes and act on the back wheels, and the wheels of wire furnished with Michelin tyres. The wheel base of the 8-h.p. car is 5 ft. 5 in., and its total length 9 ft. 5 in., while its cylinders are 60 by 20. The price of this car when fitted with a two-seater torpedo body is £197. The bore and stroke of the 10-h.p. four-cylinder Bayard are 65 and 120 respectively; the price when fitted with a four-seater torpedo body is £241. In the 14-h.p. four-cylinder Bayard the bore is 80 and the stroke 130, the wheel base being 9 ft. 5 in., and the total length 12 ft. 11 in. The price of the chassis alone is £308. We have not yet had an opportunity of trying these cars, but expect to find that they are of a satisfactory character, because the Clement Bayard Company has a very high reputation in France.

IN the course of a paper on acetylene lighting, read before the Illuminating Engineering Society on January 10th, Mr. C. Hoddle said that in the United States acetylene is used, not only to light motor cars, but to start the engine. On a recent American tour he saw these motor starters being made by the thousand, and they appeared to work very satisfactorily on the cars fitted with them. A small charge of compressed or dissolved acetylene was pumped into the cylinder by a simple hand-pump and fired by the ordinary electric spark. In this country the use of acetylene for motor cars seemed to be limited to lighting purposes, its great advantage being the convenience with which the tubes containing dissolved acetylene could be carried from place to place. Mr. Hoddle stated that acetylene was being employed for miners' lamps to a great extent on the Continent. In France 50,000 acetylene lamps were in use in the mines, and double this number in Germany. The qualities of acetylene lamps for mines had recently been the subject of careful attention, and inquiries into the experiences obtained with open acetylene lamps in the metalliferous and salt mines of Prussia had lately been made by the Prussian Minister of Trade and Commerce, and a corresponding inquiry had been instituted in France.

Nova et Vetera.

PROVERBIAL MEDICINE.

Prognosis in Proverbs and Folklore.

Prognosis in disease is proverbially difficult, and so it comes about there are not many proverbs which can be said to yield real assistance in forcasting the future. It requires a very old doctor or a much experienced nurse to foretell a patient's death, and few care to risk their reputation on a guess as to the exact time of the end. "Death defies the doctor"[1] in more senses than one. Further, prognostic proverbs are so closely allied to superstitious beliefs as to be sometimes incapable of separation from them. Nevertheless, there are many interesting sayings of a prognostic kind in common use which are worthy of consideration by the medical man who wishes to be acquainted with popular notions regarding sickness and the signs of approaching recovery or impending death. It is always disconcerting for the doctor to be ignorant of beliefs known to his patients or their friends, even when these are only of the nature of folklore.

Shakespeare's picture[2] of the prognostics of the approach of death is so well known and so often quoted as almost to have acquired proverbic force. The hostess says to Bardolph, concerning Falstaff's death:

> A'parted even just between twelve and one, even at the turning o' the tide, for after I saw him fumble with the sheets and play with flowers, and smile upon his fingers' ends, I knew there was but one way; for his nose was as sharp as a pen, and a' babbled of green fields. . . . So a' bade me lay more clothes on his feet. I put my hand into the bed and felt them, and they were as cold as any stone; then I felt to his knees, and they were as cold as any stone, and so upward and upward, and all was as cold as any stone.

Thomas Lupton's description[3] contained a few more details:

> If the Forehead of the Sick wax red, and his Brows fall down, and his Nose wax sharp and cold, and his left Eye become little, and the corner of his Eye run, if he turn to the wall, if his Ears be cold, or if he may suffer no brightness, and if his Womb fall; if he pulls Straws or the Cloaths of his bed, or if he pick often his Nostrils with his fingers, and if he wake much: these are most certain tokens of death.

In these descriptions the medical reader will recognize many of the symptoms of impending dissolution put into popular language, and other signs are hinted at in some sayings and beliefs as the following. Thus the loss of transparency of the cornea may be the origin of the saying reported by Adams[4] that

> Some physicians maintain that, if looking in a sick man's eyes they see their image, there is hope of life; but the want of this resultance is held an argument of instant death.

Again, there is the adage, "Hunger in sick folks doth foretell death's sad approach," referring to the keen desire for food which is superstitiously explained as the earth or the grave calling for them. The proverbial "death-rattle" is due, of course, to the noise caused by mucus in the trachea which the sick man cannot bring up; and there is the saying, "I shall die, I cannot spit from me," which may point to the same *ante-mortem* inability.

Unusually high spirits in any one are often held to presage an illness or even death; and physiological conditions, such as a rising temperature, doubtless underlie and cause the phenomenon. In some persons an attack of gout or megrim is preceded by a feeling of well-being or of mental brilliancy. In Scotland, principally, this state of mental exaltation is commonly known as *being fey*, possibly from the Old English *fóege*, fated to die or near to death; and there are such proverbial sayings as "death on the fayest falls," and "there'l nae man die but him that's fie." In Wright's *Dialect Dictionary*[5] the explanation given of the word is that it was formerly used to express the state of a person who was supposed to be dying, but who would rise from his bed and go about the house, conversing with his friends as if nothing ailed him; but it was also used of persons in health whose eyes displayed unusual brightness, and who appeared to act and speak in a wild and mysterious manner. This state of feydom or feyness has been illustrated by several examples in *Notes and Queries*[6] taken from Shakespeare (*Romeo and Juliet*), Casanova's *Memoirs*, Howell's *Letters*, Scott's *Guy Mannering*, and Tytler's *History of Scotland* (death of James I); but the instances chosen were all cases of sudden and violent death. The "lightening before death"[7] following upon disease has another cause, if, indeed, we can speak of these historical cases of feyness as anything more than mere coincidences brought to mind after the event by superstitious people. It is to be explained probably by changes in the cerebral circulation; and it may very easily deceive the unwary doctor as well as the uneducated relatives into a hopeful prognosis.

It is possible that some of the death warnings so often spoken of by the superstitious may have their origin in the visual and auditory phenomena which result from disturbance of the functions of the liver or kidneys or are due to acute degrees of anaemia. In this group may perhaps be placed "seeing a black dog cross the path," hearing "heavy rumbling sounds" or "strange voices," and dreams, especially of the nightmare type. Even the detection of an unpleasant smell (for example, "smelling the grave to-night will see the corpse to-morrow") may originate in one of the sensory disturbances of the olfactory nerve known to precede some diseases; but the proverb quoted probably refers rather to another's death than one's own.

Osler,[8] again, writes of the anomalies of vision which may go before apoplexy (the so-called "warnings"), and apoplexy is just the sort of disease which lends itself to the public mind as an instance of mysterious visitation. A blue mark on the skin appearing without known cause and called a *dede-nip* or *witch's nip*, has been regarded as of grave import; may it not in some instances have been purpuric?

Sir Thomas Browne[9] refers to a curious belief that a dying person "loses his own face" and begins to look like some of his near relations, and alludes to a case in which a young man, dying of consumption, "maintained not his proper countenance, but looked like his uncle, the lines of whose face lay deep and invisible in his healthful visage before"; he reflects that "as from our beginning we run through variety of looks, before we come to consistent and settled faces; so before our end, by sick and languishing alterations, we put on new visages; and in our retreat to earth, may fall upon such looks which from community of seminal originals were before latent in us." Sir Thomas is not referring here to the *facies cadaverica s. hippocratica* ("nose as sharp as a pen," etc.), for he calls it that "odd mortal symptom not mentioned by Hippocrates."

Osler has a saying regarding death which may yet become a proverb—namely, "A man rarely dies of the disease from which he suffers." The explanation of this apparently paradoxical statement is, of course, the incidence of terminal infections made possible by the weakened resistance of the tissues occurring some little time before death; the primary disease makes death possible, but the terminal infection gives the *coup de grâce*. In this relation reference may be made to the somewhat commonly remarked coincidence that a physician dies of the disease he has specially studied or has been specially successful in treating. Nearly every one can bring to mind such cases; but it is doubtful whether they are really common, for whilst their occurrence is certain of recognition and comment their non-occurrence passes without remark.

Many proverbs declare the certainty of death—"All men are mortal" (*Mors omnibus communis*) is very true, but "All men think all men mortal but themselves"[10] is the form in which the ordinary man interprets it; "No one can escape death" (*Mortem effugere nemo potest*); "Nothing is certain but death and the taxes"; "Thou know'st 'tis common, all that lives must die, passing through nature to eternity";[11] "The first breath is the

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[1] Ramsay, Allan, *A Collection of Scots Proverbs*.
[2] Shakespeare, W., *King Henry V*, Act II. sc. iii, lines 12-28. (See also Hippocrates's *Presages*, etc.
[3] Lupton, Thomas, *A Thousand Notable Things*, Bk. III, 1660 (*vide* Lean's *Collect*, II. 572).
[4] Adams, T., *Works* 1629 *vide* Lean's *Collectanea*, II, 579).
[5] *Dialect Dictionary* (Wright's), vol. II, p. 346.
[6] *Notes and Queries*, Series I, vol. II, pp. 84, 150, 1851.
[7] Lean's *Collectanea*, vol. II, pp. 572, 573, 1903.
[8] Osler, W., *Principles and Practice of Medicine*, fifth edition, p. 961, 1905.
[9] Browne, Sir Thomas, Letter to a Friend. *Works*, vol. iii, p. 66.
[10] Young, E., *Night Thoughts on Life, Death, etc.*
[11] Shakespeare. *Hamlet*. Act I, scene ii, lines 72, 73.

beginning of death" (*Nascentes morimur, finisque ab origine pendet*);[12] "Death borders upon our birth, and our cradle stands in the grave";[13] "Death is common to every age" (Cicero);[14] "A man may not see to-morrow, but he will certainly see the day of his death," and so on, and so on. Death is indeed the ultimate prognosis. Some proverbs, recognizing this universality of the mortal ending of life, put the best face on it and say it is "Better to die quickly than to live sickly," and "*Bona mores est homini, vitae quae exstinguit mala*" (Death, which destroys the evils of life, is good to a man); others boldly say "*Mortem optare malum, timere pejus*" (To wish for death is bad, to fear it worse), and "*C'est ici que j'attend la mort, sans la désirer, ni la craindre*"; and yet others, with a high hope embedded in them, briefly declare "*Mors janua vitae.*"

The idea of death "a necessary end" which "will come when it will come"[15] seems to be reflected in such proverbs of a prognostic kind as "If doctors fail, what shall avail?" and "While the doctors consult the patient dies"; and it may possibly be shadowed forth in the proverb quoted by Rabelais that "Happy is the physician who is called in at the end of the illness" (*Heureux est le médecin qui est appellé sus la déclinaison de la maladie*)—meaning, it may be supposed, that then the appointed end of recovery or of decease is no longer dependent upon his skill or lack of it. "There is no remedy against death in the herbarium of the apothecary (*Contra malum mortis non est medicamen in hortis*) is another such saying. The danger of relapses in disease is well known to the proverbialist, who puts it in such forms as "The relapse is worse than the disease," "The second fall in sickness is ever most dangerous," and "Our sinnes, I fear, will work worse afterclaps, and there's most danger in a re-relapse."[16]

The almost invariably fatal result of certain diseases has also been crystallized into proverbs. Thus, Lucretius wrote of the plague in Egypt, which defied the best medical skill of the time: *Mussabat tacito medicina timore* (The art of medicine murmured low in mute fear);[17] and, of the same malady in Sicily, Silius Italicus said, *Succubuit medicina malis.* Then there is the French proverb of the four disastrous states whose names end in *ique: Les maux terminant en ique font au médecin la nique.* These were *hectique, apoplectique, paralytique,* and *léthargique;* and in English we might render the adage, "Diseases ending in ick, give the doctor the kick." With all the advances that have been made, it is still true that consumption (hectic), apoplexy, paralysis, and lethargy (Arbuthnot's "lighter sort of apoplexy") are maladies of grave import, and, with some slight readjustment of opinion, are even now reckoned of the worst prognosis. It may be added that "*faire la nique*" means to give a sign of contempt or mockery, as in the expression, "*Un vrai philosophie fait la nique à la fortune, aux richesses*" (A true philosopher turns up his nose at fortune, at wealth); it may be compared with Shakespeare's "Do you bite your thumb at us, sir?"[18]

Ague, by which we must suppose that a chill or rigor is sometimes intended, has given rise to some prognostic proverbs. The saying that "a quartan ague is the reproach or shame of physic" (*opprobrium medicorum*) may possibly refer to the risk of relapses and reinfections. There is also the proverb that "quartan agues kill old men and cure young," and there is that other somewhat mysterious adage that "No man dies of an ague or without it";[19] possibly a rigor is all that is here meant. "An ague in the Spring is Physic for a king" may perhaps be explained by the other proverb (a French one) which declares that "From a great illness a man comes to a great health" (*De grande maladie vient on en grande santé*); and there is another saying which affirms that "autumnal agues are long or mortal," which is connected, no doubt, with the adage, "Agues come on horseback, but go away on foot," appearing in French as "*Les maladies viennent au cheval retournent à pied.*"

The common cold in the head has given rise to some proverbs of a prognostic kind. Thus we hear it said "A cold must have its course," a form of prognostic fatalism which is probably no more than a reflection of the more widely reaching saying that every disease will have its course. There is greater exactness in the adage which declares that a cold takes "Three days to come, three days to stay, and three more to go away."[20] There are other proverbial sayings about colds, such as "A cold begins with the cat and goes through the house," but they are etiological or therapeutical.

Burton, in his immortal *Anatomy of Melancholy*,[21] has a characteristically rich and entertaining chapter on the "prognosticks" of that dread malady. Notice has already been taken of the proverbial effects of ague, and Burton adds another when he writes that "All melancholy men are better after a quartan"; and then he quotes Jobertus, who "saith, scarce any man hath that ague twice: but whether it free him from this malady, 'tis a question; for many Physicians ascribe all along agues for especial causes, and a quartan ague among the rest." He passes to the evil "prognosticks": "*inveterata melancholia incurabilis,* if it (melancholy) be inveterate, it is incurable, a common axiom, *aut difficulter curabilis,* (or), as they say that make the best, hardly cured. . . . As Lucian said of the gout, she was the Queen of diseases, and inexorable (*Regina morborum et inexorabilis*), may we say of melancholy." So Burton discursively but delightfully runs on, "skimming off the cream of other men's wits, picking the choice flowers of their tilled gardens," and furnishing forth adages, axioms, semi-proverbs, and proverbs for the amusement and the edification of all who have fallen under his spell.

Some prognostic proverbs of a miscellaneous kind may be brought together here. Among surgical ones there is the German saying, *Kleine Feinde und kleine Wunden sind nicht zu verachten* (Little enemies and little wounds are not to be despised). There is here, perhaps, a proverbic warning against the infected prick or puncture of sepsis. There is also a Danish form of this proverb[22]—namely, *Ingen skal foragte lidet Saar, fattig Fraende, eller ringe Fjende* (Despise not a small wound, a poor relation, or a humble enemy). Whilst one proverb says "A green wound is soon healed," another gives the bad prognosis that "A wound never heals so well but that the scar can be seen." The busy operating surgeon of the present day will be indisposed, perhaps, to agree with the Latin proverb which says:

Medicus dedit qui temporis morbo curam,
Is plus remedii quam cutis sector dedit

(The physician who allows time for the cure of a disease gives a better remedy than if he used a knife).[23]

And there is another Latin adage (from Ovid[24]), which says:

Principiis obsta: sero medicina paratur
Quum mala per longas convaluere moras

(Resist the first advances: too late is a cure attempted, when through long hesitation, the malady has waxed strong).

And there is yet another,[25] which states that there is no use asking for hellebore when the skin is dropsical, *Venienti occurrite morbo* (Meet the approaching disease). The following French adage is probably a reflection of the one already quoted about an ague in spring; it runs thus:

Qui a la fièvre au mois de May,
Tout l'an demeure sain et gai.

It is sometimes a little difficult to distinguish between proverbs which have a prognostic meaning and those which are rather to be reckoned as etiological. This observation applies specially to such sayings as "A green winter makes a fat churchyard," "Many sloes, many cold toes," "Often drunk and seldom sober, falls with the leaves in October," etc. Another problematical proverb is, "If the patient and the disease join, then in vain is the physician"; but it may be taken to mean that if the patient is hopeless in his forecast then the physician cannot form a good prognosis, although it

[12] Manilius, *Astronomica*, Bk. iv.
[13] Hall, Joseph, *Epistles*, Dec. iii, ep. 2.
[14] "*Omni aetati mors est communis.*"
[15] Shakespeare, *Julius Caesar*, Act II, sc. ii, lines 35, 37.
[16] Lean's *Collectanea*, vol. i, p. 507, 1902.
[17] Lucretius, *De rerum natura*, vi, 1177.
[18] Shakespeare, *Romeo and Juliet*, Act I, sc. i, line 51.
[19] Lean's *Collectanea*, vol. i, p. 504.
[20] Lean's *Collectanea*, vol. i, p. 507, 1902.
[21] Burton, Robert, *The Anatomy of Melancholy*, Part I, Section IV, mem. i.
[22] *Cassell's Book of Quotations* (Benham), p. 769.
[23] *Classical and Foreign Quotations*, W. F. H. King, p. 323, 1889.
[24] Ovid, *Remedia Amoris*, line 91.
[25] Persius, *Satire III*, line 63.

may also signify that there is no chance for the sick man who allies himself with his malady by refusing to take his doctor's medicines or submit himself to the surgeon's knife, or who continues to do the things which have caused his disease. These rambles among the prognostic proverbs may be brought to an end by the best known of them all, "While there is life there's hope," with its Latin equivalent, *Spes vitae cum sole redit*, or that Greek one from Theocritus (*Idyll* IV, line 42), *ἐλπίδες ἐν ζωοῖσιν, ἀνέλπιστοι δὲ θανόντες* ("hopes are among the living, and the dead are beyond hope"). One ought to take heart. *Nil desperandum: dum spiro, spero.*

LITERARY NOTES.

IN a paragraph published in this column on December 21st, 1912, it was said that there was no documentary evidence that Flaubert, though the son of a famous surgeon in Rouen, had himself ever studied medicine. It was added that there was evidence that before introducing allusions to medical matters he sought the counsel of medical friends, and that he was sometimes coached by his lifelong friend Louis Bouilhet, who had been a medical student. The paragraph has brought us a note from Dr. William Fingland, of Liverpool, reminding us that in the BRITISH MEDICAL JOURNAL of January 31st, 1903, it was stated that M. Charles Fortin, an *officier de santé*, was the trusted adviser of Gustave Flaubert, "not only as to his health, but as to medical matters with which he wished to deal in his writings." The death of M. Fortin had occurred in Rouen shortly before this note appeared, and it would seem that the fear then expressed that he had left no reminiscences was well founded, for as far as we are aware nothing from his pen has been published during the ten intervening years.

The influx of foreign dancers, who for the last few years have taken the hearts of Londoners by storm, has done much to revive the ancient national love of dancing, and has given fresh impetus to the movement which has for object the resuscitation of the beautiful old English dances. Moreover, it has helped to show dancing in its true colours as one of the most excellent of all forms of physical exercise; even the most ardent devotee of calisthenics or Swedish drill is now beginning to recognize its virtues as a means of promoting health and activity. It seems to have been left to M. Emile Jaques-Dalcroze, the founder of the College for Eurhythmics at Helleran, near Dresden, however, to discover the hitherto unsuspected value of the dancing lesson as an educational factor in the life of school children. The January number of *The Child* contains an interesting account, by Mr. Charles B. Ingham, of the Jaques-Dalcroze system, which combined a "natural and graceful physical culture with an assured knowledge of all the complexities of the theory and notation of music and a high degree of sensibility to the basic form or mould of interpretative emotional consciousness, rhythm." The happiest results have already been obtained from this system, whose success was amply demonstrated by the grace and intelligence of the little pupils who accompanied M. Jaques-Dalcroze on his recent visit to this country, and who gave some charming displays of singing and dancing under his direction. It has been said that children, when properly instructed, dance as naturally as they walk; and it might be added with equal justice that many of them act with the same simplicity and lack of self-consciousness. An article by E. Flower on the Village Children's Historical Play Society, which appears in the January number of *The Child*, proves the aptitude of the normal boy or girl "to strut and fret his hour upon the stage," and the educational value of this form of amusement. The same number also contains an article on the feeding of infants, by Dr. James Oliver, and another on school hygiene by Dr. Arnold L. Gesell; whilst Dr. A. Gilmour discusses "Measles and Child Welfare," and Lady Henry Somerset has contributed a short account of her home for destitute children at Duxhurst in Surrey.

No one who has ever had the pleasure of reading the letters of Isabella d'Este, Marchioness of Mantua, the sister-in-law of Lucrezia Borgia, and one of the most brilliant women of her time, can fail to have been struck by the writer's passion for collecting. Books, pictures, jewellery, curios, all were fish that came to her capacious net, so that at one time the palace of the Gonzagas at Mantua must have resembled a museum crowded with rare and beautiful objects, of which, it need hardly be added, their owner was justly proud. This love of collecting, however, was by no means peculiar to the Marchioness Isabella, but was shared by nearly all her contemporaries, both in Italy and other countries. The earliest museums on record, therefore, were really the rooms set apart in the private houses of enthusiastic collectors for the accommodation of the owner's most precious possessions. M. Pierre-Amédé Pichot, writing in the December number of *L'Hygiène*, gives an interesting description of several of these old-world collections. Probably the one that would have appealed most strongly to a modern mind was that of a Liverpool man named Bullock, which from 1809 to 1819 was on view at the building afterwards known as the Egyptian Hall. This collection comprised several authentic relics of the first Napoleon, of which the most important was the travelling carriage captured by the Prussians at Waterloo, and presented by Blücher to the Prince Regent. The First Gentleman in Europe displayed doubtful taste in selling the property of his defeated adversary to Mr. Bullock, who afterwards disposed of it, in his turn, to a Mr. Hopkinson, a coach-builder in Holborn. It may be remarked in passing that this same carriage is now on view at Madame Tussaud's, having found its way there after leaving Hopkinson's hands. Such personal belongings as were found in the berline at the time of capture were sold separately, when Mr. Bullock's collection was broken up and brought under the hammer. They consisted of a small canteen containing a couple of flasks, plate, goblet, china egg-cup, and a silver salt-cellar, pepper-box and mustard-pot, which still held the remains of the condiments with which they had once been filled, a set of chessmen used by the Emperor during the Russian campaign, a flask half full of rum, and two of the imperial toothbrushes. Perhaps the most pathetic reminder of departed glory, however, was the tiny uniform of a miniature colonel of lancers, which had originally been made for the child who afterwards became Napoleon III.* This suit, with all the accoutrements, was knocked down for less than £4, a sad ending for what was probably a source of infinite pride and pleasure to its little owner. The December number of *L'Hygiène* also contains an excellent article by Dr. Maurice de Fleury on the treatment of neurotic patients; whilst Dr. Robert Wurtz has contributed a short account of the present state of the public health in France, and M. Henri Meurisse advises his readers how to keep healthy during the winter months.

* The child referred to was not Napoleon's son, but his nephew, who afterwards succeeded him as Emperor, and was the husband of the Empress Eugénie.

A NURSING Conference and Exhibition will be held at the Horticultural Hall, Westminster, on April 22nd and the three succeeding days. The conference, which will discuss both nursing and midwifery, is being organized by a committee of matrons representative of all branches. Further particulars may be had from the office, 22–24, Great Portland Street, W.

THOUGH the total number of persons who went to Carlsbad last year for treatment showed a fall from 70,935 to 68,269, there was an increase of nearly 100 English patients. There was a decline of 600 in the number of American patients. It is said that most resorts of the kind had fewer visitors than usual last year owing, it is thought, to the bad weather of the summer, and the disturbed political situation in Europe.

THE Woman's Medical Association of New York City notifies that an appointment will be made to the Mary Putnam Jacobi Fellowship of 800 dollars for post-graduate study on June 1st, 1913. Applications must be received by April 1st. The fellowship is open to women graduates in medicine, and will be awarded upon proof of ability and promise of success in the chosen line of work. Further particulars can be obtained on application to Dr. Martha Wollstein, 325, Central Park West, New York.

SCIENCE NOTES.

THE final and successful attempt to set up a universal radium standard dates from 1910, when the Congress of Electricity and Radiology, meeting in Brussels, appointed an international committee of physicists to select a well-defined unit in which quantities of radium emanation might be expressed. The result has been the adoption of the unit known as the curie. But as certain other standards, more or less arbitrary, have hitherto been in vogue, and have found their way into literature, it becomes necessary to tabulate their comparative values with the new standard. MM. Jacques and Gaston Danne[1] group the various units employed to express the quantity of radium emanation as follows: (1) Curie, millicurie, microcurie; (2) gram-second, gram-minute, milligram-second, milligram-minute; (3) maché. Without entering fully into the questions involved in the setting up of this new standard, the fact may be recalled that radium emits, spontaneously and continuously, a gas (emanation) which itself is a radio-active substance. The transformation of this gas into another radio-active product follows the law that the quantity of emanation destroyed at each instant is proportional to that which is not yet transformed. While radium has a very slow period of decay, its emanation has a very rapid period, and therefore, owing to the decomposition of the emanation itself, the process of accumulation cannot be carried beyond a certain point. That point is reached when the quantity of emanation produced at each instant is equal to that which is destroyed, and at this moment of radio-active equilibrium the quantity of emanation is the greatest possible for the amount of radium involved. The curie represents the quantity or mass of radium emanation in equilibrium with one gram of radium (element), while the millicurie and the microcurie are quantities in equilibrium with one milligram and one-thousandth of a milligram respectively. The gram-second is the quantity of emanation freed by a gram of radium (element) during one second, and the milligram-minute, by which the greater number of French thermal stations express the radio-activity of their waters, is the quantity of emanation produced by a milligram of radium during one minute. The maché unit, an expression common in this country and in Germany, depends upon the ionizing effect of the radiation emitted by radio-active substances. The ions thus formed may be collected, and the electric current produced in an ionization chamber is easily measurable by means of electrometer or electroscope. The maché unit represents the quantity of emanation, without disintegration products, which produces a current of limited saturation—that is to say, in a receptacle of very large dimensions—equal to one-thousandth of the electrostatic unit of current intensity. It is a very small unit, whereas the curie is a large one. The emanation contained in 10 litres of mineral water moderately radio-active is of the order of 0.1 microcurie, whereas in maché units it would be expressed by hundreds. The table of equivalents is as follows:

Curie.	Millicurie.	Microcurie.	Milligram-minute.	Maché.
1	1000	1000000	7992000	25000000000
0.001	1	1000	7992	25000000
0.000001	0.001	1	7.992	25000
0.00000208	0.00208	2.08	16 66	5213.5
0.0001248	0.1248	124.8	1000	312812
0.00000002	0.00000208	0.00208	0.0166	5.213
0.00000001248	0.0001248	0.1248	1	312.8
0.00000000004	0.0000004	0.0004	0.00319	1

To find the gram-minute figures, the figures for the milligram-minute are in each case divided by 1,000.

The electric condition of the earth in relation to the atmosphere is forced upon attention during a storm of lightning, and it has been stated that thunder clouds are sometimes negative and sometimes positive towards the surface of the earth. But it is not easy to get any clear ideas on the general subject from books. From an article Dr. George C. Simpson contributed recently to *Nature* it seems that the physicists have not yet arrived at any certain and comprehensive conclusion. He sums up the present state of knowledge by stating that a flow of negative electricity takes place from the surface of the whole globe into the atmosphere above it, and that this necessitates a constant return current of more than 1,000 ampères, but that nevertheless not the slightest indication of any such current has so far been found, and no satisfactory explanation for its absence has been given. The loss takes place from all regions of the earth, subject to normal or fine weather conditions, so that it would appear that a return current can only exist in regions of disturbed weather; in such regions the potential gradient is often reversed, and the rain charged. Though a reversed field causes a flow of negative electricity into the earth, yet the time during which the field is reversed is only a very small fraction of the time during which it is normal. If the loss were made good in this way the flow of electricity would be so enormous that it could not escape detection. It was believed for many years that the electricity comes to the earth in the disturbed area as a negative charge on rain. But experiments in many widely separated parts of the world show that in all kinds of rain, from that of thunderstorms to a drizzle, more positive than negative electricity is brought to the earth. So that rain only makes the problem more difficult. Nor does it seem probable that lightning discharges from cloud to earth can play an important part. Thus, Dr. Simpson says, the science of atmospheric electricity has come to a deadlock, and there is at present no indication of a way out.

[1] *Archives d'électricité médicale*, December 10th, 1912.

Klausner found that in over 50 per cent. of syphilitic cases and in certain skin diseases a precipitate was obtained if the serum were diluted with three times its volume of water. Further investigation of the mechanism of this reaction has revealed certain very interesting phenomena, which may shed considerable light on the *rationale* of the Wassermann and kindred reactions. In the *Biochem. Zeitschr.* for November 20th, 1912, Klausner gives the details of his experiments with normal and syphilitic serums, both heated and unheated. He shows that every serum which gives the particular reaction loses that property when it is heated or after extraction with ether. In the latter case the property can be restored; in other words the serum can be reactivated by the addition of an ethereal extract of brain lipoids, but in the former case this addition does not restore the property. A normal unheated serum gains the property of giving a precipitate on dilution with water if the ethereal extract of brain lipoids be added to it, whereas this does not occur with heated normal serum. On the other hand a serum which has been activated by the addition of the lipoids is rendered permanently inactive by heating, but if the lipoids be heated *separately* their activating properties are not destroyed. The active property is only lost when they are heated in the presence of the serum, and in that case the addition of fresh serum does not restore it. A positive serum rendered inactive by extraction with ether becomes again positive if its extract be restored to it; the addition of the same extract to a normal serum renders it also active, and it is even possible to activate a negative serum by adding to it the ether extract of a normal serum, although in this case higher concentrations of the ethereal extract must be employed.

In view of the claim put forward by Neubauer and Fischer, and supported by others, that many cases of cancer of the stomach contain an enzyme capable of hydrolyzing glycyltryptophan, and that the detection of this ferment by a simple method was of considerable diagnostic value, Schryver and Singer (*Quarterly Journal of Medicine*, October, 1912), have investigated the gastric contents after test meals in 200 cases of grave stomach disorder for the presence of a peptolytic ferment. Such a ferment was found in 17 of the 200 cases, but gastro-jejunostomy had been performed in 4 of these, and in these instances the ferment was regarded as being of duodenal origin. The remaining 13 formed a well-marked group in which the total acidity was low, free hydrochloric acid was absent, the total and active chloride was below normal, and what the writers term the "peptic

index" was very low. It is worthy of note that, though the results of gastric analysis of these 13 cases would generally be regarded by the clinician as being indicative of cancer of the stomach, yet only in 4 of them was a malignant growth present, and in one of the latter it was situated in the duodenum and not in the stomach. The presence of the peptolytic ferment is certainly not characteristic of gastric cancer, for in 25 undoubted cases of the disease a positive result was obtained only in one. The writers associate the presence of the ferment with gastric dilatation and atrophy of the walls, and consider that it is of local origin.

THE DEVELOPMENT OF BATH.

VISIT OF LONDON MEDICAL MEN.

ONLY the weather was inhospitable on January 18th, when, by the invitation of the Mayor, a number of leading members of the medical profession paid a visit to Bath. Immediately on arrival the visitors were taken on a fleet of motor-cars to the heights of Lansdown and other beautiful environs of the city; and at night, in the Grand Pump-room, the after-dinner toasts were being drunk only ten minutes before the return train was due. It was stated, by the way, to have been the first time within the memory of the oldest inhabitant that the ancient Tompion clock and the solemn-eyed statue of Beau Nash have looked down upon anything so vulgar as a dinner.

A brief lecture on the city's antiquities was given among the Roman remains, and then, to compare ancient things with modern, the visitors made a tour of the bathing establishment, and also inspected the institute for medico-mechanical treatment, which is one of the most recent additions to the therapeutic equipment of the spa. Still more recent, however, is the "inhalatorium," where, at Sir William Ramsay's suggestion, special apparatus has been installed for the inhaling of the mineral water finely atomized by the "niton" gas or radium emanation. An ingenious spraying arrangement, hitherto fed with air or with air and steam, is now fed also with the natural gas rich in its radio-active properties, and is being used in the treatment of disorders of the nose and naso-pharynx, and in various local affections. The idea is that by this means, not only the radio-activity of the water, but the higher radio-activity of the gas itself, is brought into play.

At a subsequent gathering in the concert hall, the MAYOR (Mr. G. T. Cooke) laid stress upon the national character of the asset which Bath possesses in her mineral waters, and expressed the determination of the city to make it realizable to the full. He hinted that the authorities had been approached by those who were prepared to spend from a quarter to half a million upon the baths, but whether this would mature or not, Bath as the premier English spa must go forward.

Sir WILLIAM RAMSAY then delivered an address which was to a great extent a recapitulation of his previous statement as to the radio-activity of the Bath waters.[1] The amount of radium present in the form of emanation, he said, compared favourably with the richest waters on the Continent, such as those of Carlsbad. The emanation had 75 per cent. of the radio-active property possessed by its parent radium in the subterranean depths, and its decomposition, after being given by the mouth or by injection, was followed by similar physiological effects. The fact that the emanation issuing from the gas in the Bath spring was so much greater (perhaps twenty times greater) than the emanation in the water itself, seemed to have a practical bearing upon the therapeutic application of the substance. Therefore he had suggested—and the suggestion had been put in practice in the "inhalatorium"—that the gas from the waters should be bottled up under pressure and used in spraying the water for the treatment of local conditions. It would be an advantage if in such cases, as well as in other treatments in the baths, the patient were insulated and rather strongly electrified negatively, as the absorption of the radio-active particles, which were for the most part positively charged, would then be accelerated. There were three possible methods of applying the emanation therapeutically. One method was to drink the waters saturated with the substance, and this had been carried out for centuries in the pump-room; the second method was to inject a solution of the gas below the skin, and for this purpose the water was insufficiently charged to produce a result with any practicable quantity; the third method was to inhale the gas, for which special provision had now been made. Sir William added that the use of the emanation in one form or another had a great advantage over any possible means of swallowing or injecting doses of radium, for, apart from the expense of this latter procedure, the slow period of radium decay would mean that very little of it would decompose during the time in which it could remain in the system, whereas the shorter life of the emanation made it therapeutically much more potent.

Sir LAUDER BRUNTON, in a few reminiscent remarks, said that, so far as he knew, Sir William Ramsay was the first to suggest the use of radium in medicine. He came to him (Sir Lauder) seven or eight years ago with the idea that radium might be of service in the treatment of cancer. The suggestion was not put into practice within his own experience until almost two years later, and, although in that particular instance, there was subsequent recurrence, the events were sufficient to demonstrate the potentiality of the radium. In rodent ulcer its effect was remarkable, and in such conditions as sciatica and neuritis he believed radium treatment to have done a great amount of good. From his own experience of radium he had learnt two things—namely, that radium did excite tissue activity, and that extreme care was necessary with regard to dosage.

It was, however, the development of Bath itself in view of its treasure trove that was chiefly discussed. Dr. LEONARD WILLIAMS here revealed himself as the candid friend. He said that, in spite of the smiles of those who talked about the influence of suggestion, it was known that all so-called indifferent thermal waters had a virtue in certain pathological conditions, and among such waters those of Bath were, perhaps, the most efficacious. But when it came to the question of the arrangements at Bath he was less inclined to be laudatory. Comparing the Somerset spa with some of those which were best known on the Continent, he had to reply that the accommodation for bathers and the attractions for visitors were inadequate. He trusted that the English thermal station, in no respect behind its rivals in natural advantages, would develop its resources and bring its establishments up to the high level which its past history warranted.

Further comparisons of Bath with foreign spas were forthcoming at the dinner, when Sir LAUDER BRUNTON, in proposing the toast of "Prosperity to the baths of Bath," said that he had visited almost every health resort of importance in Europe and some out of Europe, but after forty years' wandering his choice was limited to Bath and Aix-les-Bains, the latter suffering, of course, from the disadvantage of distance.

Sir BERTRAND DAWSON, in supporting the toast, said that Bath would have to bid farewell to the evil tradition which had haunted the spas of this country. The tradition might be summarized in the word "haphazard." It was necessary to remember not only the definite treatment of the patient, but the life he had to live. It was useless to bathe a man for his gout in the morning and allow him to nullify the effect with a five-course dinner at night. A stricter regimen was necessary, and he suggested that possibly something might be done in this direction in Bath by means of the hotel owned by the Corporation. Careful organization such as this was the true secret of the success of Carlsbad and other places on the Continent. There a rigorous dieting was enforced, the patient having to do what he was told; he was directed to take graduated exercise, and the distances of his walks were marked out with red posts for the first week and with green posts for the second, and so on. Bath had a band of medical men, progressive, full of knowledge, and up-to-date, but no scheme of organization could succeed without the far-sighted and enterprising layman.

Dr. W. HALE WHITE expressed the thanks of the visitors for the hospitality they had enjoyed. It should be added that no small amount of the success of the occasion was due to the local medical men, whose spokesman, Dr. E. J. CAVE, in a brief speech, said that it was impossible for any man to practise his profession in Bath and remain sceptical as to a specific and potent virtue attaching to its waters.

[1] BRITISH MEDICAL JOURNAL, March 16th, 1912, p. 617.

British Medical Journal.

SATURDAY, JANUARY 25TH, 1913.

THE THERAPEUTICS OF RADIUM.

THE first report of Mr. Hayward Pinch, the Medical Superintendent of the Radium Institute, founded in London in 1911 at the suggestion of King Edward VII, and through the munificence of Sir Ernest Cassel and Viscount Iveagh, is an interesting and in many ways a remarkable document, for the opportunity of publishing which we are indebted to Sir Frederick Treves, Chairman of the Executive Committee of the Institute. It is remarkable, first, for the temperate spirit and scientific caution with which it is drawn up, and it is remarkable also for the striking benefit derived by certain patients in a distressing and hopeless condition from the treatment provided by the Institute. Too often those who have been concerned in the earliest application of a new method of treatment producing effects patent to any observer have been carried off their feet, and in the first flush of enthusiasm, generalizing from insufficient data, have made promises which later experience has not fulfilled. The report now published is free from that defect, and Mr. Pinch takes occasion to utter a warning against the irrational enthusiasm and unthinking expectation which has often attended the introduction of a new remedy and so led to cruel disappointment. He gives a rigid interpretation to the term "apparent cure," which is understood to be a condition in which all trace of the original lesion or lesions has disappeared, in which there is no sign of any recurrence, and in which the patient is, so far as can be determined by a thorough and careful examination, free from any indication or symptom of the disease.

The report deals with the work of the Institute since it was opened in August, 1911, down to the end of last year, a period of a little over sixteen months. Owing to the generosity of the founders, the Institute is in possession of a very large stock of radium, so that practically any quantity considered advisable can be used in the treatment of any case, but Mr. Pinch makes it clear that great discretion must be exercised in determining the amount which should be used, the duration of application, and the amount of screening in any given case. All cases applying to the Institute have been received, except those practically moribund or those in which the disease was of a kind for which radium-therapy was manifestly unsuitable.

Probably most readers will look first at those passages in the report which deal with cancer. Any attempt to form an opinion with regard to them must be governed by the statement in the opening sentences of the report that no examples of malignant disease, with the single exception of rodent ulcer, have been treated unless operation has been declared to be unjustified or the patient has absolutely refused operation; the rigid interpretation given to the term "apparent cure" must also be noted. No useful purpose would be served by a minute analysis of the statistics, and Mr. Pinch does not attempt it. The stages and extent of the disease vary so much from case to case that only a very large number would warrant use of the statistical method, but some general impression may be obtained from a summary view of certain classes. It appears that the total number of patients suffering from epithelioma who applied for treatment at the Institute was 147; of these, 13 were not treated; in 8 the treatment was commenced so recently that no opinion on its result can be stated, and in 15 the application of radium was prophylactic only. This leaves 111 cases in which the treatment of epithelioma was undertaken, although it was abandoned by 23 patients. Of the 88 cases that remain if these be deducted, 20 are not improved and 22 are dead; if to them, on the assumption that the abandonment was due to the patients' disappointment with the result, we add the cases in which the treatment was abandoned, we get a total of 65 failures, or nearly three-fifths. To set off, we have 7 cases in which the patient was apparently cured and 39 in which there was improvement—a total of 46, or about two-fifths. Applying the same system of classification we find that in cancer of the breast the treatment failed in 38 cases and was attended with more or less success in 35, and that in cancer of the rectum it failed in 27 cases, or about three-fourths, and succeeded in 10, or rather over one-fourth. The report is quite definite in advising that radium should never be used in cancer of the breast as a substitute for operation, and the same is true of cancer of the rectum. It seems established, however, that, in inoperable cases of cancer of the breast, radium is often able to relieve pain, promote the healing of ulcers, and check the growth of secondary deposits; in a few instances superficial carcinomatous nodules and enlarged glands disappeared, and reports are given of several such cases in which the results were very remarkable.

In cancer of the uterus the immediate results reported are so satisfactory that it would appear well worth while to submit any patient with inoperable disease to the radium treatment. It has been applied by introducing into the cervical canal a tube containing radium for periods of thirty to sixty hours spread over five or ten days. In a considerable proportion of cases haemorrhage is arrested, discharge diminished and rendered inoffensive, ulceration healed, pain relieved, and the growth even in some cases stopped. Out of 39 cases treated 3 were apparently cured, while 19 were improved, but the report points out that the action is only local, that in most cases dissemination will occur, and the growth spread to parts beyond the effective range of radium.

The evidence as to rodent ulcer seems to justify the conclusion that the best advice which can be given to a patient with rodent ulcer of the skin is to resort at once to treatment by radium. It has been found that if the lesion has been treated for prolonged periods by the *x* rays, zinc ionization, and carbonic acid snow, the healed tissue frequently breaks down after radium, and repair is slow and imperfect. A small rodent ulcer limited to the skin and not previously treated may be cured by a single exposure, probably because it is safe to use a full-strength applicator unscreened. With a large ulcer it is necessary to proceed more cautiously, as an unscreened application to the whole area will produce severe systemic disturbance. Different parts of the surface are therefore treated at intervals of three or four weeks. If the disease has attacked bone or cartilage, still more caution is requisite to avoid the risk of acute painful and prolonged inflammation. Rodent ulcer of a mucous

membrane is refractory to treatment by radium, though small lesions of the palpebral mucous membrane often respond well to a strong unscreened application. The statistics are encouraging. Omitting one case in which the application was prophylactic only and 10 treated so recently that the result cannot be stated, there remain 90 cases. Of these, 12 were not improved, 6 abandoned treatment, 31 were apparently cured, and 41 improved. If we assume that treatment was abandoned owing to its want of success, it will be seen that the treatment failed in one-fifth of the cases, succeeded in about one-third, and produced improvement in the remainder. It will be noted that all the patients who applied to the Institute were treated. The cases of sarcoma are relatively few; 26 were treated, of whom 9, or about one-third, were improved, it being said of two of them that they are apparently cured.

Among the other diseases treated the most striking results were obtained in keloid and naevus. In the former disorder they are described in the report as "admirable," and whether judged by the statistics or by the individual cases narrated the epithet seems to involve no exaggeration.

Of the 14 cases of keloid or keloid acne treated, 3 are reported cured and 8 improved, while the treatment was abandoned in the remaining 3. One of the chief practical difficulties in the therapeutic application of radium is so to adjust the strength and duration of the application as to avoid a severe reaction. The cause and nature of the reaction has not yet been fully elucidated. Why it should commonly be delayed for two, three, or even four weeks, is not at all clear, and we are not aware that any explanation has been suggested. In some cases where an eroded surface exists the radium reaction proper is, there can be little doubt, complicated and aggravated by septic infection, and it would seem that in some such cases the severe pain suffered during the reaction is in part, at least, due to this cause.

We are indebted to Professor E. Rutherford, F.R.S., of Manchester, for the information that in his laboratory a number of cases have occurred in which fingers have been burnt by exposure to the alpha rays. This has usually occurred in transference of the emanation or in fixing an alpha ray tube in an apparatus when the fingers were brought into close contact with the tube. As a rule, nothing is noticed at the time, but a week or ten days later the finger becomes very painful, and a slight bluish tinge is observed under the skin. About three weeks after exposure the cuticle peels off, and is replaced by a new layer. The general effect later is that the finger has lost to a great extent its sensitiveness of touch, but there have been no cases of sores which would not heal. These particulars are an interesting addition to the information given in the brief reference to the subject in his *Radio-active Substances and Their Radiation*, a book to which we confidently refer all serious students of the subject.

The treatment at present is in the empirical stage. To get an institution of this novel kind into working order and to evolve and test rules for its administration has been no easy task. Now that it has been accomplished we may look forward to the prosecution of inquiries into the physiological action of radium, for on the perfecting of knowledge on this side the establishment of principles governing the scientific use of the radiations in therapeutics must depend. A question of vital importance is to ascertain whether the rays of radium exert a specific action on cancerous or developing tissue. At present it is not clear which rays produce the effects observed in carcinoma. So far as can be judged, it is improbable that the alpha rays, under the conditions described, can, as a rule, have reached the tissues. Whether the most penetrating rays—the gamma rays—have any physiological effect is not known with any certainty, but the evidence seems, on the whole, against such an hypothesis. There remain, therefore, the beta rays, which are themselves complex. An analytic study of the physiological effects of the several groups of rays would be a worthy object for the Radium Institute with its unrivalled resources and magnificent opportunities.

A NEW CHAPTER.

THE two matters which seem to be of particular moment among the events of the last week or ten days are, in the first place, the decision of the Representative Meeting last Saturday releasing members of the profession from the obligation to it implied in the undertaking and pledge; and, in the second place, the failure of the determined attempt made in certain quarters to split the Association, or, to use the phrase adopted by some political newspapers, to "smash it."

The decision to release all practitioners from the undertaking and pledge was seen to be inevitable in the circumstances brought about by the success of the tactics of the Insurance Commissioners and some members of the profession itself, with the assistance of the Government press. The further decision to rescind the resolution passed at the Liverpool meeting calling on all practitioners to refrain from applying for or accepting any post in connexion with the Insurance Act until the Government had satisfied the Association that its demands would be met, leaves members free to constitute statutory Local Medical Committees and to accept nomination to Local Insurance Committees, to which their presence will help to give a right direction. After coming to this decision the Representative Meeting unanimously adopted a resolution instructing the Council to take all necessary steps to protect the interests of the profession and asking members of the profession to supply information to the Association after they had had some experience of the working of the present provisional arrangement. The meeting further reiterated its opinion that the Act is unsatisfactory, and instructed the Council to give every assistance in its power to medical practitioners in districts in which opposition to the Act was maintained.

With regard to the campaign against the Association, its political basis, in London at least, has been undisguised. It has signally failed, and it is not necessary to play the part of Bunyan's man with the muck-rake; much may be forgiven to politicians in a funk. The Representative Meeting, like many of the individual Divisions of the Association, recorded its emphatic protest against the discreditable methods adopted by the Government whereby a position of urgency was created under which many practitioners, finding themselves threatened with financial ruin, were compelled to give unwilling service under the National Insurance Act. The profession has been hustled into the insurance scheme, but it does not mean to be hustled out of the British Medical Association. Of this there is ample evidence in the opinions expressed by members of the medical profession in all parts of the country; it is further established by the hearty response which so many members of the profession are making to the recent call for a further instalment of their guarantees to the Central Defence Fund.

The profession in most parts of the country is committed to the provisional arrangements which have been entered into for the first three months, and it is of the first importance that steps should be taken at the earliest date to nominate medical members of Local Insurance Committees, and to apply for the statutory recognition of Local Medical Committees.

The importance of the duties assigned to Local Medical Committees will not have escaped the attention of any student of the Act and of the Regulations for medical benefit. Where in any county or county borough or any area for which a district committee has been formed a Local Medical Committee has been formed by members of the medical profession in the area, it must be recognized by the Insurance Commissioners if they are satisfied that it is representative of the duly qualified medical practitioners resident in the county, county borough, or district. Where such a Local Medical Committee has been set up and recognized it must be consulted by the Insurance Committee with regard to the conditions of service upon which it is proposed to afford treatment to insured persons and as to the method of remuneration. Before approving any arrangement with practitioners submitted to them by an Insurance Committee, the Commissioners must consider any representations made to them by the Local Medical Committee. Before fixing, varying, or abolishing an income limit the Insurance Committee must consult the Local Medical Committee, and that Committee may at any time, by notice in writing to the Insurance Committee, dispute the right of an insured person to receive medical benefit on the ground that the income of that person exceeded the income limit. Any question arising between an insured person and a practitioner attending him under the arrangements made by the Insurance Committee, in respect of the treatment rendered by the practitioner or the conduct of the insured person while receiving that treatment, would stand referred to the Medical Service Subcommittee, consisting of six members and a chairman. Of the six members three would be appointed by the Local Medical Committee and three by and from the members of the Insurance Committee who represent insured persons. The chairman would be selected by the six persons, and would be one of those members of the Insurance Committee appointed by the county council or the Commissioners who are neither insured persons nor practitioners. The complaint must be stated in writing and sent to the Clerk of the Insurance Committee. Under the general regulations mentioned above it would be referred direct to the Medical Service Subcommittee; the persons authorized to attend the inquiry would be the complainant and respondent, a representative of the society (if any) to which the insured person belonged, a representative of the Local Medical Committee, and any witness or assistant of either party, but not a barrister or a solicitor. The Medical Service Subcommittee would make a report to the Insurance Committee, stating the facts established and recommending the action to be taken. The findings as to the facts must be accepted by the Insurance Committee as final. With regard to complaints falling into another category—those involving the efficiency of the medical service—made by a practitioner on a panel against any other practitioner on the panel, they would be considered by the Local Medical Committee, which would be empowered to apply to the Commissioners to remove the name of the practitioner from the panel, or to take such other action as they might deem proper. The Insurance Committee would have a similar power of making representations to the Commissioners. In either case the Commissioners would be required to refer the matter to an Enquiry Committee composed of two practitioners and one other person who must be a barrister at law or a solicitor in actual practice. The Commissioners also take power to refer any similar representations made by any other body or any person to the same committee if they think it advisable so to do. The Enquiry Committee would appoint one of its members to be chairman, but the chairman would not have a casting vote. The procedure of the Enquiry Committee would be such as it thought fit, subject to the approval of the Commissioners. At the inquiry either party might appear in person, or with the consent of the Enquiry Committee, by counsel or solicitor, or by any member of his family, or by any officer or member of a society to which he belonged, or, in the case of a company, by any officer or director of the company. The Enquiry Committee would be empowered to take written as well as oral evidence, and to require any statement to be verified by a statutory declaration. Upon the determination of the hearing, the Enquiry Committee would draw up a report to the Commissioners stating such relevant facts as had been established by the evidence and the inferences, if any, which in the opinion of the Enquiry Committee might properly be drawn from the facts so found. Should a practitioner raise a question as to whether an operation or other service is comprised in the treatment which he has by agreement undertaken to give, that question would be referred by the practitioner to the Local Medical Committee, and if the Local Medical Committee and the Insurance Committee failed to come to an agreement the matter would be submitted for decision to referees established under the Regulations. A Local Medical Committee would also be empowered to represent to the Commissioners that the inclusion or continuance on the list of persons supplying drugs and appliances (a chemist or other person) would be prejudicial to the service in the county, and the Commissioners must thereupon hold an inquiry. The Insurance Committee must prepare a list of the prices which it is willing to pay for the drugs ordinarily supplied and for appliances, and the Insurance Committee, if it proposes to revise the list of drugs and appliances, must consult the Local Medical Committee before submitting its proposals to the Commissioners.

It will be seen, therefore, that the functions of a Local Medical Committee are of no little importance, and it can hardly be necessary to insist on the importance of constituting such committees, and obtaining their statutory recognition in every county, county borough, or insurance district in which panels have been formed.

REPAIRING THE PERINEUM.

Is it necessary to repair the torn perineum after a confinement? Dr. Frederick Blume[1] says that many practitioners do not regard it as necessary, or rather—and this is not quite the same thing—they do not wish to do it, yet they would not allow a laceration of the skin in any other part of the body to remain ununited. They would put stitches at once in a tear extending out from the angle of the mouth or of the eye into the cheek. Why, then, do they not put sutures into a tear extending from the vulva into the perineum? Dr. Blume recently operated upon a

[1] *American Journal of Obstetrics*, pp. 1028-1036, December, 1912.

patient who had a complete perineal laceration' running back into the rectum, but before the woman came into his hands she had been kept in bed by her physician for three weeks with her legs tied together, "to give Nature a chance" as he termed it. Now, why did he act so foolishly? If she had been riding a bicycle and had fallen on to the bar of the machine and had torn her perineum from the anus into the vagina, her physician would never have thought of tying her legs together "to give Nature a chance"; he would have stitched up her perineum.

Dr. Blume names two or three possible reasons which prevent doctors putting stitches in the perineum in labour cases. He says that obstetrics is so poorly paid that medical men spend as little time as possible over their confinements, and are very glad to leave the repair of the perineum, when it is torn, to Nature, believing—or shall we say hoping?—that she will be able to manage it. This may be one reason. If it be so, then it goes to strengthen the truth of the saying that the lazy obstetrician makes the busy gynaecologist. But there is another reason. Labour no doubt is a physiological process, and it is argued that as it is a natural act, no tear, therefore, is to be expected; but if it occur by any chance, why then it should be left to heal by natural processes. This is an infirm argument. A physiological process may go astray, and a great part of all medical practice is to prevent such going astray or to remedy the error.

Dr. Blume gives other reasons why the torn perineum is sometimes left unsutured; but there is one at least to which he does not refer—it is simply because the medical attendant does not look to see whether it is torn! He does not put a thumb on each side of the perineum and hold the parts aside; he forgets that after soft parts have been widely distended they fall together again naturally; he sees no gaping wound, and concludes that there is no wound at all.

The last reason given by Dr. Blume—and the profession may feel indebted to him for putting it in black and white—is that patients regard the torn perineum as a sign of incompetence on the part of the doctor. They are shocked, and they show that they are shocked, when their physician tells them that he has had to put a stitch or two into the skin. He feels sure they will criticize him severely in discussing his management of the case with other women, and especially with other women who have been attended by doctors who did not confess to perineal tears by announcing the insertion of sutures. More than this, when he meets with a really deep laceration—one which certainly ought to have six or seven sutures in it—he contents himself with putting in one or two stitches, and so risks failure of union altogether rather than confess to what his patient may, and almost certainly will, regard as the result of mismanagement. There are patients, it seems, who "estimate the efficiency of the obstetrician according to the number of sutures which he uses in the repair of the perineum"; the fewer he puts in the higher he is in their regard!

These outspoken remarks and candid criticism of the profession by Dr. Blume call for action. He himself suggests that medical men should begin by educating women in the knowledge of what is involved in childbirth, and he is quite right. A woman ought to know that at her first confinement it is very likely that there will be a tear of the perineum, and that no obstetric skill will be able to prevent it, although proper care will lessen the chances of it occurring and will certainly limit the extent of it. She ought also to be told that under certain circumstances deeper tears are also unavoidable. Most important of all, she ought to understand that her medical attendant ought to stitch up all such tears, small as well as deep, and that the number of sutures required depends entirely upon the size of the wound, and should be sufficient. It may then come about that the woman with an extensive laceration will praise and not blame the doctor who puts in many stitches.

There are other things, of course, which must be attended to: the best method of managing the passage of the head over the perineum must be taken, the lateral posture in labour should be adopted, and the like; but the chief matter at present is to counteract the prevalent belief that laceration is always avoidable, and so make it possible for the conscientious man, without loss of prestige, to do what is needful and right. In the discussion which followed the reading of Dr. Blume's paper (at the annual meeting of the American Association of Obstetricians at Toledo, Ohio) some speakers maintained that it was better to stitch up such tears twenty-four hours after their occurrence; but that is beside the point, which is that they be recognized and sewed up.

CANVASSING FOR INSURANCE PATIENTS.

IT is evident from information which is arriving at the offices of the Association that the new conditions of practice brought about by the National Insurance Act are leading some members of the medical profession into methods of seeking patients which are not only entirely contrary to the traditions of the profession, but which, if persisted in, will inevitably lead to charges before the General Medical Council. There is evidence that some practitioners are issuing circulars informing insured persons that they are on the panel and are open to accept names on their lists; and these circulars, to which probably little exception might be taken if they were sent to actual patients on the books of the practitioners issuing them, are apparently in some instances being distributed broadcast. Not only this, but there are indications that some practitioners have not scrupled to secure the influence of officials of approved societies in order that their persuasive efforts may be brought to bear on those persons who may not have any strong views as to choice of doctor. Already some Divisions have called the attention of the local profession to the need of care in this matter, but it seems that some strong general note of warning is needed if the honoured traditions of the profession in regard to advertising and touting are not to receive a blow from which they will only recover after a series of sharp disciplinary proceedings at the hands of the General Medical Council. The Association will of course lend all its aid in repressing such practices, and looks to the Divisions to watch any tendency of the kind with a jealous eye.

THE RADIUM INSTITUTE IN LONDON.

THE first report of the Radium Institute[1] in Riding House Street, Langham Place, London, W., which is published in full this week, seems to show that it has fully justified its existence; and it may be useful to recall the conditions under which patients are admitted for treatment. In the first place, it is to be noted that it is open to all classes of the community, and that paying as well as gratuitous patients are received. According to the rules by which the administration of the Institute is carried out, patients

[1] An illustrated description of the Institute was published in the BRITISH MEDICAL JOURNAL, 1911, vol. ii, p. 302, and full particulars of the rules governing the admission of patients, with a tariff of fees charged those able to pay, were there given.

are only treated in association with or through the introduction of their medical adviser. At their first visit they must either be accompanied by him or must bring with them his written statement giving details of the treatment already employed. Necessitous patients are admitted to free treatment if certified by their ordinary medical adviser to be suitable subjects for charity. All other patients are charged according to a scale of fees; the fee for a first consultation at the Radium Institute with the patient's medical adviser or upon a written statement from him is two guineas, and the fees for treatment vary from two guineas to five for each application, being governed by the site of the lesion and the strength of the apparatus used. The duties of the Medical Superintendent towards patients are clearly defined in a letter written by Sir Frederick Treves, the Chairman of the Executive Committee.[1] In this letter it is stated that it rests with the Medical Superintendent to indicate the specific treatment to be employed in each case as well as the details of that treatment, and to see that the treatment by radium recommended is carried out. For that treatment he is responsible, and it rests with him to decline to treat any case in which he considers treatment by radium likely to be of no service to the patient. The diagnosis of the malady rests with the doctor who brings or sends the patient to the Institute. Should a third opinion be considered necessary, the patient's medical adviser is asked to arrange this and to select the consultant, and the ordinary fee for such consultation must be paid by the patient. If the applicant is necessitous, and is therefore being treated as a gratuitous patient, the opinion of a member of the honorary consulting staff can be obtained free, the relation of that staff to the Institute being precisely the same as exists between any other honorary staff and the charitable institution with which the staff is associated. Paying patients at the Institute have no claim whatever upon the services of the consultant staff, and the members of that staff are in no other relation to such patients than are all other consultants or specialists; and the medical superintendent is specially instructed to leave the selection of a consultant to the discretion of the patient's ordinary medical adviser; the supervision of the patient between the attendances at the Institute for the application of radium is in the hands of his ordinary medical adviser. The services of the medical superintendent himself are free to all patients, but his services are entirely confined to the treatment actually given in the Institute and where that treatment involves special manipulation, as, for instance, in the application of radium to the larynx, oesophagus, rectum, bladder, or uterus, he is instructed to ask the medical adviser of the patient for the assistance of a specialist. The Institute has a well-equipped physico-chemical laboratories under the direction of Mr. W. Lester Alton, who has a private workroom, and will carry on researches into the action of radium as part of the work of the Institute. His first report is published as an appendix to the report of the medical superintendent, printed elsewhere in this issue. It is to be gathered that since the laboratory was opened it has been so busily engaged in measurements connected with the purchase of the radium salts required and in the preparation of applicators and of radio-active solutions, that there has been little opportunity for original research. The laboratory determines the activity of the apparatus employed, and, in the case of all emanation applicators, the dosage during the period of application. The work of preparing the applicators began before the Institute was ready to be opened, and by that time twenty-four pieces of apparatus were ready for use, all, with a few exceptions, prepared by or under the supervision of the director. Since then eleven more applicators have been made, and others will be prepared.

[1] BRITISH MEDICAL JOURNAL, 1911, vol. ii, p. 302.

CANCER OF THE RECTUM.

IT is a trite saying that surgery is our only present hope of curing cancer. By "cure" one means total eradication of the diseased process. If a cancer be wholly removed it does not recur, and the obvious corollary is that a recurrence is evidence not so much of the failure of surgery as of the incompleteness of the particular surgical technique employed in such cases. Whatever be the outcome of experimental research, it is unlikely that surgical treatment will be superseded for many years to come, if, indeed, it will ever be wholly replaced. Time and time again medicinal treatments and more or less wondrous chemical applications are rushed into temporary prominence, cures are vaunted; but in a disease that differs so widely from all other diseases, that is of such widespread distribution throughout the animal kingdom, the causation and mode of onset of which are unknown, and the natural evolution of which is almost invariably a progression towards a fatal issue, the administration of drugs on the chance of effecting a cure is as the act of one who would attempt to extinguish a volcano with a squirt. Many so-called "cures" that one reads of are based upon an imperfect acquaintance with the natural course of the disease. The resources of surgery are always extending, and it would be rash, indeed, to seek to delimit the possible scope of the surgical treatment of cancers. It comes to be a question not of removing tissues wide of the disease in a haphazard manner, such as too often characterized the operative measures of the past, but of removing the definite structures through which the outrunners of the tumour are, or may be, permeating unseen. These danger tracts have, therefore, to be more exactly mapped out and understood, and the surgical endeavours that will recognize them will be the measures of hope. The observation, too, of sites of recurrence after imperfect operations is of considerable practical assistance. The results of particular operative procedures, frequently fortuitous, are not the best means of determining their practical effectiveness. There will always be those who ask for a sign, but when the lapse of years brings the practicable result for them to appraise, the progress of knowledge will by that time have rendered the operation a thing of the past. If, however, surgical measures be built on the surer foundation of pathological facts, progress will be quicker as the means adopted are more rational. Evidently, then, investigations into the surgical pathology of cancer are of immediate practical value to the surgeon. The more extended the operations become, following such lines, the greater the number of cases amenable to treatment. The greater risk must be met by increased dexterity. That is the surgeon's problem; it is beyond the field of the pathologist. As Seneca said of philosophy, it is not the office of pathology to teach men to use their hands. But of late years a younger school of surgeons has arisen, applying to the problem of the treatment of cancer the observations on the surgical pathology of the disease made in the laboratory by themselves or their associates. The operations of Sampson Handley on mammary cancer, of Berkeley and Bonney on uterine cancer, and of Miles on cancer of the rectum, are typical evidences of the work of this school. Under these advanced operations the number of cases amenable to treatment has risen to about 75 per cent., and one might be erring on the safe side to assume that the effectiveness of the operations—that is to say, the proportion surviving a three years' limit of those actually seen—is well over 40 per cent. With the earlier recognition of the signs and symptoms of cancer, we may well hope for greater improvement than has already taken place within the last few years. In Mr. Miles's clinical lecture published in this issue, attention is called to the early symptoms of cancer of the rectum. When the disease affects the anal canal or the upper portion of the rectum noticeable symptoms occur early, but when the ampulla is affected the malignant

process may proceed for a considerable time before the patient is impelled to seek advice, and the occurrence of intractable constipation followed by a period of diarrhoea and probably due to atony of the bowel wall may prove a symptom of great service in recognizing an early case of cancer in this situation. The whole paper is a brief but forcible exposition of the author's views on a subject that has recently, notably at the annual meeting of the Association at Liverpool, excited much discussion.

SIR GEORGE TURNER, M.D.

THE fact with which many of his friends have been for some time acquainted with regard to Sir George Turner, whose name appears in the New Year Honours list, that he is suffering from leprosy, has recently been made public. We shall not now be violating confidence by stating that the letter published in the BRITISH MEDICAL JOURNAL of April 20th last, p. 925, was written by Sir George Turner. In that letter he expressed certain opinions founded upon his experience of leprosy in South Africa. These opinions were that leprosy is not hereditary, that it is contagious, that it is spread wholly and solely by contagion immediately and mediately, that it is communicable from the sick to the healthy, but not nearly so easily as phthisis, and that it is not such a danger to the public health as syphilis. He laid stress upon the difficulty which might in some cases be encountered in diagnosing the disease, and said that if he presented himself for examination and treatment at a hospital, especially if he concealed the fact that he had been associated with lepers, his disease would probably not be correctly diagnosed by the majority of physicians. He strongly urged that leprosy should be made notifiable, and his advice has the more weight because he added, "You may be sure I do not desire that lepers should be subjected to more restrictions or annoyances than are actually necessary, but they should cheerfully submit to any and every precaution likely to prevent others from suffering in the same way as they themselves are suffering." Sir George Turner entered the civil service of Cape Colony as medical officer of health in 1895. He was then nearly 50 years of age, but in the period that followed, until his retirement twelve years later, he rendered very great services to South Africa and to the world at large. An outbreak of rinderpest occurred in Cape Colony in 1896. The late Professor Koch was then studying the disease and had devised a system of inoculation, but had to leave South Africa before his work was complete; for the last three weeks of his stay Dr. Turner was with him. Six months later Dr. Turner had produced a curative and preventive serum, but the immunity produced only lasted for three weeks. He accordingly continued his researches and had for his assistant Wilhelm Kolle, and within six months devised a system of simultaneous inoculation of virus and serum, which produced the most excellent results. The report on this subject was signed by him and Dr. Kolle, and the method is now commonly spoken of as the Kolle-Turner method, whereas it ought certainly to be known as the Turner-Kolle, or the Turner method. The inoculations then made amounted to an experiment on an unusually large scale: how many animals were treated cannot be accurately stated, but in the case of 14,000 the results were ascertained. The epizootic was arrested, and within a year the disease was stamped out. The Government of Cape Colony then closed Dr. Turner's station, but as the prophylactic there produced was urgently required in Rhodesia and Egypt, Mr. Cecil Rhodes defrayed the cost of carrying it on for another four months; then the work finally ceased. Dr. Turner, after his eighteen months of hard work, during which he lived in tents among the cattle, took a holiday in England. On his return to Cape Colony the then Minister of Agriculture intended to propose a vote of thanks in the Cape Parliament, and to move a grant of money, in recognition of Dr. Turner's great services, which had resulted in the saving of millions of money in South Africa alone; but the Ministry fell, and nothing was done. When the war in South Africa broke out Dr. Turner volunteered at the outset, but it was not until the following year, when the prevalence of typhoid fever in the army had become very severe, that Lord Roberts asked for Dr. Turner's services in dealing with the epidemic in the army and in the concentration camps; subsequently, Lord Roberts bore testimony to the value of Dr. Turner's work. In 1901 rinderpest broke out again, and Lord Kitchener asked for Dr. Turner's help. A station was with some difficulty started at Pretoria, and in twelve months rinderpest had once more been stamped out. On this occasion, also, the prophylactic was supplied to Egypt and Natal. There was at that time at Pretoria a leper asylum containing about 50 Dutch and 40 native patients. Dr. Turner worked there for seven years, the first three purely as a labour of love. He saw the lepers each morning and evening, and gave up the whole of Saturday and Sunday to them. Here he conducted many *post-mortem* examinations, and arrived at the conclusions which have been mentioned in the beginning of this note. Upon reaching the age limit Dr. Turner retired, but continued the study of the bacteriology of leprosy. After several years of laboratory work he had to make the diagnosis of leprosy in himself. He is now living in seclusion in this country, suffering from definite leprosy of the nervous type, which has produced great loss of power in the left arm and some weakness in the right. It is understood that Sir George Turner's name was included in the New Year Honours list on the initiative of the King, who had recently become aware of the facts. His Majesty's ready action in this instance will appeal to every member of every profession, and most of all to the profession of which Sir George Turner is so great an ornament. It has appealed, and will appeal, to all members of the public, and it will be appropriate if the Cape Government to-day carries out the intention of the earlier Ministry. It could, perhaps, best do this by making a substantial increase in Sir George Turner's retiring allowance, so that the disabilities attaching to his unfortunate position may not be aggravated by the pecuniary anxieties which a father crippled in health and with educational responsibilities towards his children must suffer.

PASSPORTS.

A CASE heard recently before Mr. Justice Darling at the Central Criminal Court contains a warning for all medical men. A medical practitioner in London was charged with having put forward false declarations made for the purpose of obtaining passports for two men with foreign names. The passports were issued, and the two men were subsequently taken into custody at Stuttgart on the charge of having procured a girl from England. The counsel who appeared for the Foreign Office said that it was not suggested that the defendant had the smallest knowledge of the real character of the men, and that when the police communicated with him he treated the matter quite frankly and gave full information. Before a passport can be issued to any person there must be a declaration signed by some one of certain specified classes (mayors, magistrates, justices of the peace, ministers of religion, barristers-at-law, physicians, surgeons, solicitors, and notaries) to the effect that to the best of his personal knowledge the applicant is a fit and proper person to receive a passport. The form has recently been changed, and it now bears an endorsement stating that any person who made a statement which proved to be untrue would be liable to prosecution. It appeared that in this case the men were unknown to the medical practitioner

who signed the forms but were recommended to him by a patient in whom he had great confidence. The defendant, through his counsel, expressed great regret for the mistake he had made. The judge, while accepting the defendant's explanation that he was quite unacquainted with the character of the men, imposed a fine of £25 each in respect of two declarations. From this case and from one of a similar order which was reported in this JOURNAL in September, 1911 (page 770), it is clear that medical men are not fully aware that the Foreign Office attaches great importance to the declaration which has to be made by an applicant for a passport which must be supported by some person in a responsible position who is acquainted with the applicant. It is dangerous to give such guarantees unless sufficiently acquainted with the applicant to feel certain that the declaration made is absolutely true. It is, moreover, very desirable to make certain that the applicant is himself about to proceed upon a journey abroad and therefore really requires a passport.

A MAP OF THE INSURANCE ACT.

WE have received from the Association of Standardized Knowledge, Limited, of 15–16, Buckingham Street, Adelphi, W.C., a chart of the National Health Insurance Act, prepared on a novel plan. The subject matter of the Act is arranged in vertical columns and the compilers have chosen as headings a series of seven functions into which the operations of the Act naturally fall. Horizontally, the subject matter is further arranged under headings of the different groups of persons coming within the jurisdiction of the Act. By this ingenious system, a map is made, in which the functions of the Act may be termed its longitudes, and the people brought within its operations its latitudes. This device makes it comparatively easy to ascertain the operations of the Act in reference to any particular person or subject; only the essence of the Act is given, but it is to be found rapidly and conveniently. An important feature of the chart is that appended to every statement is the number of the clause of the Act, so that direct reference can be made if desired. The chart has evidently been prepared without political bias, but incidentally it brings out many curious points, for instance, men in the army or navy only receive maternity benefit, so that out of 100,000 men in the regular army who pay insurance tribute, 80,000 have no chance of receiving anything in return, not more than 20 per cent. of the men in the service being married. The Association of Standardized Knowledge appears to be an offshoot of a body called the "Organization Society" which exists to propound and explain the science of organization based on the axiom that society is an extension of the individual, and on three principles—of degree, of a universal duality, and of the line of least resistance—to teach its principles and advocate their application. The president of the society is Mr. Marshall Bruce-Williams, and the other members of the executive committee are Colonel B. R. Ward, R.E., and Colonel F. N. Maude, C.B. Captain R. R. Gibson is the acting honorary secretary, and further information can be obtained from him at 15, Buckingham Street, Adelphi, W.C. The society will arrange for giving lectures illustrated by lantern slides, will institute classes, and is prepared to affiliate literary, scientific, or debating societies which may desire to work along its lines.

A MEDICAL UNION UNDER THE TRADE UNION ACTS.

MEDICAL practitioners in Leicestershire and Rutlandshire are making an experiment which will be watched with much interest. They have formed a Union of Medical Practitioners, drafted rules, and conformed to all conditions entitling the Union to be registered under the Trade Union Acts of 1871 and 1876. The certificate of registration was issued on December 14th, 1912. We are indebted to the chairman, Dr. R. Wallace Henry, of Leicester, whose brief letter appears elsewhere in this issue, for a copy of the Rules of the Union; but it has not been possible in the time at disposal since its receipt to submit them to more than a cursory examination. It may, however, be noted that any registered medical practitioner who has not, in the opinion of the Central Committee of the Union, been guilty of conduct detrimental to the honour and interests of the profession, or calculated to bring it into disrepute, may become a member of the Union on signing an undertaking to conform to the rules of the Union and to the working rules of the Public Medical Services established and controlled by the Union. There are two classes of members—acting, who are prepared to give medical attendance on contract terms through the Public Medical Service; and honorary, who are not. The Union is authorized to establish branches in the United Kingdom and to institute a system of school clinics for the treatment of necessitous children, and takes power to give legal assistance to its members. The entrance fee and annual subscription are to be fixed at a sum not exceeding one guinea in each case, but the Central Committee has power to make a levy not exceeding £5 on each member. In the constitution provision is made for members unable to attend a meeting to exercise their right to vote. The Union has taken power to indemnify a member in respect of any loss incurred by him on account of action taken by him in accordance with the advice or instructions of the Union. The Union, Dr. Wallace Henry informs us, is in no sense intended to be a rival to any other organization.

THE CHINA MEDICAL MISSIONARY ASSOCIATION.

THE China Medical Missionary Association, which has held its triennial conference in Peking during the early part of January, is a society which exists for the purpose of uniting all medical missionaries in China working in connexion with the various missionary societies. The *China Medical Journal*, issued quarterly by the association, is perhaps its most important work, and this not only deals with important questions of missionary policy, but also includes papers on a variety of professional subjects. The association is a purely advisory body, but it has been of great assistance to the missionary societies, particularly with reference to the subject of medical education, and has undertaken the translation and publication in Chinese of many medical works, including such volumes as Gray's *Anatomy*, Halliburton's *Physiology*, Osler's *Medicine*, Rose and Carless's *Surgery*, and Caird and Cathcart's *Surgical Handbook*. Conferences are held annually at various centres, but a general conference takes place only once every three years. It was in connexion with this conference that the President of the Republic (Yuan-Shi-Kai) on January 15th received the members present with great honour, as is reported in a Reuter's telegram. Replying to an address presented by the missionaries, Yuan-Shi-Kai said: "I am delighted to receive the medical missionaries. We are most gratified to you for your charitable services, especially in the interior, where the importance of sanitary principles, once comparatively unknown, is being increasingly recognized throughout the land, owing to your labours. It is also due to you that destitute women and children are being succoured and that the poorest people are receiving the elements of an enlightened education. Many of you assisted during the plague, materially aiding in restricting the ravages of the disease which had alarmed the world, while during the revolution many of you faced dangers and difficulties in order to relieve the sufferers. I am glad of this opportunity to offer you our most sincere personal thanks, and I hope that you will continue your labours, thus adding to the glory of your reputation and strengthening the bonds of friendship between your countries and ours, which I hope to strengthen every year."

SECRET COMMISSIONS.

Since the passage of the Prevention of Corruption Act, 1906, there would seem to have been a cessation of the corrupt offers to medical practitioners to recommend drugs, appliances, medicated wines, mineral waters, schools and homes for mentally deficient persons, of which examples were brought to our notice in former years, and from an answer given by the Attorney-General in the House of Commons to a question by Sir Samuel Scott it appears that during these six years there have been only eighty applications for the Attorney-General's *fiat*, twelve of which were refused, leaving only sixty-eight instances in which there was a *prima facie* case. It is therefore to be hoped that these discreditable attempts have been largely checked by the Act in question. A medical correspondent, however, has recently sent us a copy of a typewritten letter received by him from the head office of a company concerned in the manufacture and sale of a certain appliance, one paragraph of which reads as follows: "Any member of the medical profession may take advantage of similar discount rates to those granted to our agents, or, if so desired, a commission basis can be arranged for the introduction of our instruments to any patient whom the doctor considers would benefit by its use. The patient so sent to us must bear a letter of introduction, and we handle the case entirely from that moment." There can be little doubt that such a communication is contrary to the spirit of the law, and that any medical practitioner who entered into such an arrangement might render himself liable to the penalties fixed by the Act.

MEMORIAL TO MISS LOUISA TWINING.

A strong desire having been expressed, a sum of money has been privately subscribed in order to perpetuate the name of this well-known worker in a manner which she herself would have approved. Miss Twining has left an example of public spirit, of much work accomplished under difficulties, and of increasing efforts to make known the needs of many who could not speak for themselves. The better conditions of the sick in hospitals, under the Poor Law, and in their own homes, the appointment of women to serve on public bodies, the training and protection of young workhouse girls, the care of aged and lonely women, all engaged her powers, and in the latter cases led to her founding homes, which have proved of great value. Beyond these and many other interests, the sad position of poor people suffering from epilepsy appealed strongly to her sympathies. For many years Miss Twining took charge of a certain number of these women, who, while of superior education, were debarred from earning their living by their cruel affliction; she understood their needs and their difficulties, and her home was their home. Thus their loneliness was lessened, and good treatment, combined with the utmost care and patience, led in some cases to restoration to health. It was felt that Miss Twining would like her name to be remembered by the endowment of a memorial bed in one of the homes for women at the Chalfont colony, Bucks. She thoroughly approved of the methods pursued there by the National Society for Epileptics, and subscribed liberally to the funds of the society during her lifetime. The cost of endowing a bed at the colony is £200, and there is urgent need for such help. This has been paid over to the society, and some of the money will be spent on a first-rate "regulator" clock for one of the dining halls of the colony. A donation will be sent to the Women's Local Government Society, 17, Tothill Street, S.W., of which Miss Twining was a Vice-President at the time of her death. As a guardian Miss Twining's name will be long remembered, and she inspired many women to undertake similar work. She herself considered that, if understood rightly, one of the most responsible and the noblest title any human being could possess was "guardian of the poor." J. Wilson (Honorary Secretary and Treasurer), 10, South Hill Park Gardens, Hampstead; Lieutenant-Colonel E. Montefiore, Naval and Military Club, Piccadilly, W. (Joint Treasurer).

LOCAL MEDICAL COMMITTEES.

We are told that there is an idea in some parts of the country that the medical practitioners elected to form a Local Medical Committee must be themselves members of the panel. A glance at the Act, section 62, would have shown that this notion was erroneous. The Act says that the Insurance Commissioners must be "satisfied that such committee is representative of the duly qualified medical practitioners resident in the county, or county borough," or "any area for which a district committee has been formed." Nothing is said about the practitioners elected being on the panel, and we imagine that the omission was deliberate in order that all classes of the profession and all kinds of practice should be represented on the Local Medical Committee. We give above (p. 185) a short account of the important functions which the Act and Regulations assign to a Local Medical Committee.

The subject selected by Dr. A. J. Jex-Blake for his Goulstonian lectures before the Royal College of Physicians of London, February 25th and 27th and March 4th, is "Death by Lightning and Electric Currents." Dr. F. de Havilland Hall in his Lumleian lectures on March 6th, 11th, and 13th, will deal with intrathoracic aneurysms.

Medical Notes in Parliament.

Health of the Navy.—Mr. Burgoyne asked on January 15th whether the recent official return on the health of the navy might be accepted as a criterion of the established strength of the personnel at any average moment; and, if so, wherein lay the difference between the figures there given and the estimated total for which money was taken in the year in question. Mr. Churchill said that the answer to the first part of the question was in the negative; and he readily admitted that the return referred to was somewhat misleading except for the special purposes of the Naval Medical Service. The figure given under the heading "Average Force," on page 98 of the return—namely, 117,100—represented the average number of men liable to treatment on board, or at the naval establishments, throughout the year. Cadets, Coastguard, and Royal Marines at head quarters were excluded, the latter being shown separately on pages 141, 147, and 166 of the return. The actual number borne on December 15th, 1911, was 133,498 officers and men.

Public Health (Acquisition of Water) Bill.—The Prime Minister informed Mr. Peto, on January 20th, that he feared it would not be possible to give facilities to proceed with this bill this session.

Royal Commission on Sewage Disposal.—Mr. Watt asked the President of the Local Government Board whether he proposed to introduce any legislation in accordance with the recommendations of the Royal Commission on Sewage Disposal so as to enable local authorities to deal satisfactorily with trade effluents which at present prevented purification of rivers; and, if so, would he say when he expected to introduce such legislation? The President of the Local Government Board said that a bill was in preparation, but he was not at present in a position to say when it would be introduced.

The National Vaccination Officers' Association will hold a public meeting at the Battersea Town Hall on Thursday, February 6th, at 8.15 p.m., to consider the manner in which the President of the Local Government Board is dealing with the question of the loss of income sustained by vaccination officers owing to the number of persons claiming exemption from vaccination under the Vaccination Act and Order, 1907. Mr. John Burns has been invited to attend the meeting.

England and Wales.

[FROM OUR SPECIAL CORRESPONDENTS.]

LIVERPOOL.

THE PANEL.

IN Liverpool the Insurance Act in its various relations is still a burning question. An uneasy feeling prevails that the most has not been made of the strong position which the profession held locally. Down to January 4th Liverpool medical men were practically united in a determination not to place their names on the panels. On that date the Local Provisional Medical Committee quite unexpectedly expressed the opinion that the battle was lost, and that, in view of the situation, men who went on the panel could not be held to blame. An unofficial circular conveying this decision to the profession had the effect of a cry of "Sauve qui peut!" and by January 6th, when the first panel closed, 175 men had joined. This number has been officially declared adequate for the 250,000 insured persons in the area. In practice it is unlikely that they will prove equal to the task, and the irregular distribution of panel doctors among the insured persons will not help matters. Even now there are rumours of a compromise on the lines of the Manchester scheme. Of those who held out until the Special Representative Meeting on January 18th, some will probably join the panels, others will wait the result of the most recent movement in the direction of compromise. The Local Insurance Committee is discouraging "contracting out," and endeavouring to cast the onus of showing cause on the individuals who apply to make their own arrangements.

Surveying the whole course of events, men feel that the Association has suffered from the lack of a certain elasticity in constitution which would have permitted a more rapid adjustment of policy to problems which were changing from day to day. Probably better results would have been obtained by allowing more independent action to an executive elected on such a democratic basis.

DEATH OF DR. O. T. WILLIAMS.

The whole profession mourns the loss of Dr. O. T. Williams, who died last week at the early age of 36. A sketch of his career appears in another page of the JOURNAL. It can only be said here that in Dr. Williams the profession has lost one of the most brilliant of the younger generation of physicians, and in scientific research one of its most original and enthusiastic workers.

SIR RONALD ROSS.

Sir Ronald Ross's departure for London, where he has been appointed Physician for Tropical Diseases at the new King's College Hospital, will entail considerable changes in the School of Tropical Medicine, but for the moment these have not taken definite shape. He has accepted the offices of Professor of Tropical Sanitation in the University of Liverpool and Lecturer on Malaria in the Liverpool School of Tropical Medicine.

MANCHESTER AND DISTRICT.

THE ABERGELE SANATORIUM.

ONLY about nine months have elapsed since the South Manchester Board of Guardians opened the sanatorium for consumption at Plas Uchaf, near Abergele, and they have now agreed to transfer it to the Manchester Corporation. Plas Uchaf is an estate with a large mansion and grounds covering nearly 300 acres. It cost the guardians about £12,000 in addition to some further expenditure in making alterations to fit the mansion as a sanatorium. By the agreement for transfer the corporation undertakes to refund to the guardians all their expenditure on the estate and furnishing and alterations, and to accept all incipient cases of phthisis arising in the township of South Manchester which would in the ordinary course apply to the guardians. The corporation agrees to rent to the guardians the bungalow called Pen-y-Coed, in which there are at present eight children suffering from tuberculosis, so long as the guardians require it, or in the alternative to receive such children and provide medical treatment for them at Plas Uchaf at a weekly charge to be agreed upon. It is further stipulated that the doctor and matron shall continue to serve the corporation on the present terms and conditions, that the corporation shall take over all running contracts and liabilities of the guardians in respect of the sanatorium, and that the costs of conveyance shall be paid by the corporation. The most important part of the agreement is that the corporation shall receive all the cases of phthisis for which the guardians would otherwise have been called on to provide, without distinction as to whether they are insured persons or not. The number of sanatorium beds previously at the disposal of the corporation for the treatment of insured and uninsured was far too small, and even with the addition of the Abergele sanatorium will be none too great, but the great advantage of the arrangement is that it will allow of a more systematic and co-ordinated control of all tuberculous cases under the single management of the committee of the Manchester Corporation.

THE CARE OF THE FEEBLE-MINDED.

At the annual meeting of the Lancashire and Cheshire Society for the Permanent Care of the Feeble-minded it was stated that there are now 265 boys and girls in the colony, 90 of whom are 16 years of age or upwards. They came from all over England and Wales, and many applications had been received with which at present the society could not deal. Plans for a hospital had been begun, but the money in hand was not sufficient to complete the work. In the day school there were 174 children, and both boys and girls had shown remarkable progress in the handiwork to which they were trained. The laundry girls, for instance, had earned a considerable sum of money, which was of substantial assistance towards their keep. The financial statement showed an increase in both income and expenditure, but it was satisfactory to find that the excess of expenditure over income was £200 less than in the previous year. The Lord Mayor of Manchester expressed the opinion that the strongest representations should be made to the Government to pass a measure which, while allowing the feeble-minded to live their lives as happily as they could, would prevent their going out into the world, marrying, and bringing fresh feeble-minded children into existence. Sir T. T. Shann, President of the society, said that in the report of the chief medical officer of the Board of Education, great praise had been given to the society's homes at Sandlebridge. Several speakers expressed regret that the Mental Deficiency Bill had been dropped to make room for more debatable measures, and Miss Dendy moved a resolution, which was passed, deploring the delay in the passing of the bill, and requesting the Government to pass it next session as amended in committee. The resolution added that without powers of detention, the help given to many individual cases was thrown away, and, without financial help, private charity must always be inadequate to deal with the greater number of feeble-minded persons needing care and attention.

BIRMINGHAM.

NEW CHILDREN'S HOSPITAL, BIRMINGHAM.

HER ROYAL HIGHNESS PRINCESS LOUISE will lay the foundation stone of the new children's hospital in Ladywood Road on April 23rd. The new hospital, together with the statue to be erected in Victoria Square, is the city's memorial to the late King Edward VII. For many years the old hospital in Broad Street has been inadequate to deal with the large numbers of patients urgently needing admission, and the old building is quite unsuitable for the work of a modern hospital; in addition, the lease of the present building has only a few years to run. The cost of the new hospital has been variously estimated at from £50,000 to £60,000. It is expected that the building will be completed by the beginning of 1915, and before that date £13,000 will have to be raised if the hospital is to be opened free from debt.

The new hospital will be a substantial brick and stone structure fronting to Ladywood Road, and the main entrance will be in that road. In the centre of the block

will be the residential accommodation for the staff, with offices and board-room. The out-patients' department will be erected at the extreme end of one wing when more funds are forthcoming, and on the other side provision is made for a large recreation room for the use of the nursing staff. The out-patients, operating, and x-ray rooms now to be put up will be of a temporary character only.

The in-patients' wards will be built at the rear and at an angle with the buildings in Ladywood Road; they will be approached from the main corridor, on either side of which will be rooms for the resident medical staff, matron, nurses, and dispensary. Adequate provision will be made for dealing with infectious disease, one of the most troublesome matters which the management of a children's hospital has to meet. In a special annexe of the administrative block are a group of rooms for the admission of in-patients. There they will be medically examined, and if a patient is found to be affected by infectious disease it will be taken into an isolation ward pending removal. The accommodation of the wards is for 150 children, but as open-air treatment will be an important feature of the work of the hospital, the number of patients may be considerably greater. There will be two main ward units on each of three floors, and in favourable weather patients will be wheeled out into the open air. Each wing consists of a main ward containing fourteen beds, a ward for five beds, in which a high temperature may be maintained, and a smaller room for the reception of children whose surgical dressings require renewing. A lift will give access to the operating theatres on the top floor. All floors will be fire-resisting reinforced concrete, and each ward will have an escape staircase for use in case of fire. The hospital will be heated throughout by a hot-water system. Among the adjuncts are a laundry and pathological department.

Ireland.

[FROM OUR SPECIAL CORRESPONDENTS.]

Irish Medical Profession and the Friendly Societies.

On January 3rd the County Borough of Dublin Local Medical Committee drew up the following provisional arrangement for medical attendance upon members of friendly societies pending the extension of the medical benefit clauses of the National Insurance Act to Ireland, and last week sent a copy of them to all the practitioners in the county borough:

1. Societies approved for State insurance, a capitation grant of 7s. 6d., inclusive of drugs, for a member, his wife and family, to include certificates for State and other purposes.
2. Benefit societies which are not State approved, a capitation fee of 6s., to include drugs and certificates for the payment of sick benefits, *but certificates required for State insurance purposes to be paid for at the rate of 2s. 6d. per certificate.*
3. Members of female and juvenile branches (children under the age of 16 years) to pay a capitation fee of 3s., to include attendance, drugs, and all certificates.
4. There is no special rate for single men.
5. In the case of medical officership to friendly societies, where the payment is by fixed salary, the remuneration must not be less than, on calculation, would be produced by the above capitation rates.
6. That those doctors who, in compliance with the request of the Local Medical Committee, resigned from their societies in the last quarter of 1912, be not penalized by the societies for having done so, but that each medical officer be reappointed to his respective society (or societies) upon the conditions set out herein.
7. The arrangements for medical treatment must be made through the Local Medical Committee.
8. It was further suggested that in making arrangements under the foregoing terms an endeavour should be made to limit medical benefits to persons with a gross income of less than £160 per annum.

At a meeting of delegates of the medical profession from all parts of Ireland, held on Tuesday, January 14th, at the Royal College of Surgeons, with Dr. Robert Woods in the chair, a prolonged debate took place on the terms of this provisional settlement, and the following resolutions were passed:

1. This meeting of delegates, representing the whole profession in Ireland, repudiates the action of the Dublin Medical Committee in accepting the terms offered for attendance on members of friendly societies
2. That we accept the same terms as those agreed upon by the British Medical Association until the 31st March, 1913.
3. That dispensary medical officers be requested to refuse certificates to dispensary patients under the Insurance Act, except on terms satisfactory to local medical committees, pending the settlement of the question.
4. The medical delegates of all Ireland assembled in Dublin on January 14th, 1913, on receipt of the report of Conjoint Committee, declines to appoint a medical committee with plenary power to negotiate final terms, as they are satisfied the amount of money available is not adequate to meet the cost of certification; but should the amount be supplemented to the extent of rendering an agreement possible, we empower the Executive Committee to take necessary action towards completing arrangements with the Commissioners.
5. That as the additional grant of £1,650,000 made by the Chancellor of the Exchequer to the British doctors for working the Insurance Act is an Imperial tax to which Ireland will contribute its share, we demand that a proportionate grant be made to Ireland on the basis of its taxable capacity, or in proportion to the number of insured, for the medical administration of the Act in Ireland, and thus afford the Irish parliamentary party an opportunity of redeeming its pledge to the Irish medical profession.

Oysters and Sewage at Cork.

Arising out of the recommendation of the Medical Officer of Health for Cork, that samples of shellfish should be obtained and submitted for bacteriological examination, the Local Government Board applied to the Public Health Committee in Cork for a copy of the report of any such examination. Dr. McCormack, Medical Inspector to the Local Government Board, attended the last meeting of the Public Health Committee, and reported that he had made inquiries into the circumstances connected with the four cases of enteric fever which occurred recently in Cork City, and were attributed to the eating of oysters gathered from the flats below Blackrock Castle, about two miles from the city. The liability to contamination arose from the large volume of crude sewage of the city which emptied itself into the river Lee at that point. The oysters are taken direct to Cork, and sold in the city at the public bars, restaurants, and in the streets. Dr. McCormack once more urged on the public health authority to obtain samples of shellfish and water from suspected layings in Cork Harbour and inlets, and submit them to bacteriological examination. The solicitor to the Corporation of Cork said that the difficulty lay in the fact that Blackrock was not under the jurisdiction of the corporation. The only thing it could do was to let it go to the public that oysters found within the tidal limits of the river Lee were more or less subject to be contaminated with sewage, and consequently were dangerous.

Scotland.

[FROM OUR SPECIAL CORRESPONDENTS.]

Livingstone Centenary Celebration in Glasgow.

A meeting of the representative committee in connexion with the Dr. David Livingstone centenary celebration in Glasgow was held on January 15th in the City Chambers. The Lord Provost presided, and among those present were Principal Sir Donald MacAlister, K.C.B., Professor Glaister, M.D., Dr. Macintyre, Mr. A. E. Maylard, and representatives of several public bodies interested in the commemoration. It was unanimously agreed that a fund be inaugurated for the purpose of establishing a permanent memorial of Dr. Livingstone, and there was a full discussion as to the form which this should take. The committee unanimously resolved to submit to the public the following finding:

That a Livingstone Centenary Memorial Fund be established for the promotion (1) of medical missionary work in Central Africa, especially in connexion with the London Missionary Society, the Livingstonia Mission of the United Free Church, and the Blantyre Mission of the Church of Scotland, and towards the establishment of a Livingstone scholarship in Anderson's College Medical School for the training of medical missionaries; and (2) for the promotion of the scientific study of geography in the University of Glasgow by the endowment of a Livingstone lectureship or professorship.

An appeal is now being issued for subscriptions, and subscribers are asked to indicate to which section of the memorial they desire their subscriptions to be allocated.

GLASGOW CITY ANALYST AND PURE FOOD SUPPLY.

In his annual report Mr. F. W. Harris, the Glasgow Corporation Chemist and City Analyst, states that the number of samples examined each year had steadily increased since the department was established in February, 1900, and last year 4,832 samples were dealt with. Speaking of the Sale of Food and Drugs Acts, Mr. Harris stated that effectual control of food manipulation is of ever-increasing difficulty both from the analytical and administrative point of view. The avowed object of the manufacturer was to place on the market something which appealed to the public taste, and many processes and systems applied to foodstuffs were of questionable value. The question as to what is a pure article of food must under existing conditions be fought out in the law courts, and resulted frequently in decisions which were most unsatisfactory from the public health point of view. The present-day method of arriving at a definition of what is a pure article of food was both cumbersome and unsatisfactory, involving totally unnecessary expenditure both of public and private funds. The procedure before a properly constituted board of reference would be simpler and more satisfactory. The usefulness of such a board had been fully recognized in other countries and in the Dominions. Of the food samples examined last year 15.8 per cent. were found adulterated, compared with 11.9 and 13.5 in the two preceding years. In addition, out of 235 samples of milk officially tested 69 were found adulterated.

Special Correspondence.

PARIS.

The Cocaine Habit in Paris.—A Case of Paratyphoid Appendicitis.—Intestinal Obstruction from Cherry-stones.—Tribute to the late Professor Guinard.—Mediastinal Cancer.—Mitral Stenosis and Laryngeal Paralysis.

AT a recent meeting of the Society of Mental Medicine a discussion on the cocaine habit in Paris was raised by Drs. Briand and Benssart, who cited examples in which persons addicted to cocaine had presented various hallucinations and delusions due to the habit. Dr. Provost described the various methods of administration employed, but spoke principally of the "snuff" method. Among the evil consequences of this method was, he said, perforation and ulceration of the septum nasi. Cocaine cannot legally be obtained in France without a qualified medical man's certificate; but, in spite of this, a great amount is sold in the Montmartre quarter. The drug can be obtained in some of the cafés, where, after a certain hour of the night, it is sold almost openly; and as many of the clients of these cocaine dens belong to the demi-mondaine class, this accounts for the fact that many of this class take to cocaine drugging.

M. Walther recently reported an interesting case of paratyphoid appendicitis to the Medical Society of Paris. A girl, aged 13, showed all the typical signs of acute appendicitis. At the operation thickening and oedema round the caecum was found, and the appendix was turgid and hard, with a small abscess and a coprolith at the tip. One of the paracaecal glands was enlarged and removed. After operation, the temperature rose to 40° C. each night for four days, and then gradually came down to normal. There was no peritoneal reaction to explain this rise of temperature, the result of Widal's test was negative for Eberth's bacillus and paratyphoid A bacillus, but markedly positive for paratyphoid bacillus B. It appears probable, therefore, that the case was one of paratyphoid fever, complicated by an attack of appendicitis due to the paratyphoid bacillus B, which was found in the appendix and in the gland removed from the mesentery.

M. Souligoux has reported to the Society of Surgery the case of a patient admitted to hospital suffering from signs of intestinal obstruction. He admitted having eaten a quantity of cherries, and that he had swallowed the stones. Laparotomy was performed, and a tumour 30 by 20 cm. was found in the small intestine. This tumour consisted of 770 cherry-stones. Entero-anastomosis was performed, and the patient recovered.

At the annual meeting of the Surgical Society of Paris, M. Rochard paid a tribute to the late Professor Guinard, who, as will be remembered, was killed in June, 1912, when leaving the Hôtel Dieu Hospital, after his morning's operations, by a lunatic who had been his patient. M. Rochard said that Professor Guinard had left his home for Paris with the fixed intention of one day becoming surgeon to the Hôtel-Dieu. All through his career Professor Guinard never forgot the "human" side of his profession, and took every opportunity of reminding his students that the charitable side of medicine and surgery must always be remembered. M. Rochard described the great surgeon's last illness, and how, before being operated upon, he gave instructions regarding the incision to be made and the search for the bullets lodged in the abdomen.

The difficulty in diagnosing many mediastinal conditions was illustrated by a case reported at a recent meeting of the Medical Society of the Hospitals by Drs. Bensaudi and Emery. The patient was a man aged 48, in whom diagnosis of cancer of the lung had been made by several physicians, and it was due to a secondary lesion which occurred on the septum nasi that the correct diagnosis was arrived at. On the septum nasi a gumma was visible and Wassermann reaction was markedly positive. After salvarsan was administered and the consolidation of the lung diminished, expectoration decreased and the patient put on weight and lost his cachetic appearance; *x*-ray examinations confirmed the diminution in the consolidation of the lung, and at present the patient is in good health.

At the same meeting Dr. Claisse reported two cases in which an extremely interesting and uncommon complication of mitral stenosis was observed. In both cases there was aphonia due to paralysis of the left vocal cord; both suffered from mitral stenosis, with marked enlargement of the left auricle, as proved by *x*-ray examination. In one of the cases *post-mortem* examination showed that the aorta was normal and there was no glandular enlargement, but there was marked hypertrophy of the left auricle and increased amount of fibrous tissue in the mediastinum. In both cases the paralysis appeared to have been due to pressure by the left auricle on the recurrent laryngeal.

Correspondence.

THE FUTURE ORGANIZATION OF THE ASSOCIATION.

SIR,—In the *Times* of January 17th appeared a letter from Dr. Davy, of Exeter, in which was urged the necessity of a postal vote of the members if the corporate opinion of the Association is to be fully ascertained; and in the same issue the editor of the *Times*, in a leading article, suggested that such a vote would afford probably the best solution of the present difficulties. Dr. Davy's argument may perhaps be supplemented by a modern instance. On the day immediately preceding the publication of his letter I moved, in the Marylebone Division, that the Representatives of the Division be instructed to propose in the Representative Meeting that no further action in reference to the pledge and to the Insurance Act should be taken until, by means of a postal vote, the wishes of the members of the Association had been definitely expressed. This proposal was rejected by a considerable majority. The meeting then proceeded to "instruct" the Representatives to press for the full rigour of the pledge, and consequently these six gentlemen were in a position at the Representative Meeting to advance some six to seven hundred votes, although as a matter of fact their immediate authority did not include more than forty members of the Division. I venture to ask whether a safe basis for any policy needing for its success the general support of professional opinion can be found in an arrangement which permits forty voters to appear as though they were really six hundred and fifty.—I am, etc.,

London, W., January 21st. C. O. HAWTHORNE.

THE UNION OF MEDICAL PRACTITIONERS.

SIR,—As there have been many inquiries as to whether any attempt has been made in Leicestershire to carry out the trade union policy, which I with others advocated at the Liverpool meeting of the British Medical Association last year, may I, through your columns, inform those interested that, in accordance with the unanimous resolution of a large meeting of the practitioners of Leicestershire and Rutland, a committee was appointed to take action thereon.

Articles and rules were drafted in consultation with counsel and submitted to the Registrar, and a certificate of registration under the Trades Union Acts has now been received.

A copy of the rules will be forwarded to any one desirous of obtaining one, on receipt of 1s., by the Secretary, Mr. R. Wood, 6, Market Street, Leicester.—I am, etc.,

R. WALLACE HENRY,
Chairman, Union of Medical Practitioners.

Leicester, Jan. 18th.

THE *POST-MORTEM* EXAMINATION OF NAPOLEON.

SIR,—In your critical review, entitled "A Riddle of Relics," in which you deal with Professor Keith's most able and interesting lecture on the history of the specimens in the Museum of the Royal College of Surgeons, you were kind enough to quote a passage from my little book, *The Illness and Death of Napoleon*. The quotation is as follows: "From his (Rutledge's) account in the 'Lowe Papers' there can be no doubt that he never lost sight of the corpse until it was soldered down in the coffin." I should like now to state the nature of the evidence concerning the *post mortem* examination of Napoleon, on which such a positive assertion is based. The italics in the following quotations are mine.

The *post-mortem* examination was performed at 2 p.m. on May 6th in the so-called drawing-room of Longwood, an apartment about 15 ft. by 18 ft., and lighted on one side by two windows. It has been contended that this room was badly lighted, and that at the end of the examination the daylight was failing. But in the "Lowe Papers" (vol. 20,133, f. 126) there is a hastily written letter from Sir Thomas Reade, the Deputy Adjutant General in St. Helena, to Sir Hudson, dated, Longwood, May 6th, 1821, *4 p.m.*, in which he says:

> Nothing was said about the heart until Dr. Shortt ordered the body to be sewn up. . . . I was obliged to consent to its being put in a vessel and left, under the particular care, in the same room with the corpse, of Dr. Rutledge. . . I shall wait here until dark and go to Alarm House.

It is, therefore, clear that the *post-mortem* examination was concluded before 4 p.m.; and in St. Helena there is little or no twilight, and darkness falls at about 6 o'clock.

It has been suggested that the supply of water necessary for the performance of the *post-mortem* examination was limited; but there must have been a sufficiency, for only a few months before Napoleon had ordered from the individual who has passed into history as the "one-eyed cooper" a tub 12 ft. square for his garden, and had established a somewhat elaborate system of waterfalls from one reservoir to the other.

Sir Hudson Lowe did not attend the examination, and he gives his reasons for not being present in a conversation with the Marquis Montchenu. He states that he had never in his life attended a dissection, that he did not know what the effect might be, and that he had, therefore, directed Sir Thomas Reade to represent him. Whether Sir Thomas Reade had any qualms does not transpire; at any rate, he obeyed the order and wrote a long report of what took place at the examination. This report is to be found in vol. 20,133, f. 133 of the "Lowe Papers," and shows how closely he was watching the proceedings, and the care he took to prevent any tampering. He says:

> The liver was afterwards examined. The moment the operator took it out, Dr. Shortt instantly observed it was enlarged. All the other medical gentlemen differed with him in this opinion. . . . At this moment the liver was in the hands of the operator, and upon my appearing desirous to see it close, he immediately took his knife and cut it open from one end to the other, observing to me, "It is good, perfectly sound, and nothing extraordinary in it." . . . After this I desired Dr. Shortt would give directions for the body being sewed up, and I requested it might be done *previous to my leaving the room*. Dr. Shortt desired Professor Antommarchi to do so. . . . The heart was placed in a small silver cup, and given in charge to Assist. Surgeon Rutledge of the 20th Regiment, who was placed in charge of the corpse, and to whom *I gave the most pointed orders* that he was not to allow it out of his sight. . . .

From these two letters it will be seen that, at the *post-mortem* examination, which took less than two hours to perform, the most vigilant supervision was exercised. Seven British doctors and three combatant officers, all hostile to Antommarchi, the operator, were carefully watching his movements. Can it be supposed for a moment that anything he did could have escaped their notice?

Thomas Rutledge, the assistant surgeon to the 20th Regiment, and the junior medical man present, also gives his account. Those who know Reade will understand the way in which he gave those "pointed orders," and the effect they would have upon a young doctor in the army, with a career depending upon his implicit obedience.

Rutledge has left two reports in the "Lowe Papers," vol. 20,133, f. 150, and f. 159. The first is headed "Memorandum during my visitations at Longwood from May 6th, 1821," and describes in detail how he guarded the body, which had been *sewn up and dressed*, and how he finally saw it placed in the coffin, and securely soldered down. In order to abstract parts from the cadaver, the thief would have to undress the body, to undo the suture, to find the intestines, to remove the pieces, and to sew up and dress the corpse again. Could it be done in less than half an hour, even supposing Rutledge had been absent for that period? But he mentions that after the coffin had been soldered down at 7.30 p.m. on May 7th he felt himself free to accept the invitation of Madame Bertrand to dinner. But he was not alone in his vigil from May 6th to May 7th, for Captain Crockatt the orderly officer was with him, and all day on May 7th a constant stream of people paraded before the corpse, marshalled by Crockatt.

The second report of Rutledge in the "Lowe Papers" is most important, for it is a critical commentary of the *post-mortem* appearances described in Antommarchi's book. Knowing the thorough untrustworthiness of Antommarchi, and the exposure of the many false statements he has made, it has always been a question as to how much of his account of the *post-mortem* examination can be believed. Now, those who assert that the *post-mortem* examination proved that hepatitis had existed, base their belief on a sentence in Antommarchi's report, in which he says:

> The liver was closely united on its convex surface to the diaphragm, *the adhesion extended over the whole organ, and was strong, cellular, and of long standing.*

But in vol. 20,133, f. 159, of the "Lowe Papers," Rutledge quotes this sentence, and says:

> There was no adhesion of the liver to the diaphragm excepting through the medium of a little coagulable lymph *which I easily removed with my finger when taking out the liver for examination.*

Again, in reply to Antommarchi's statement that:

> The concave surface of the left lobe of the liver adhered closely and firmly to the corresponding part of the stomach, and that at every point of contact the lobe was sensibly thickened, swollen, and hardened.

Rutledge states:

> The part of the left lobe of the liver which had been in contact with the cancerated part of the stomach was indurated, and there was a superficial thickening which extended to about the one-fourth of an inch round the circumference of the cancer. The remainder of the left lobe was free from disease.

Finally, Rutledge concludes his criticism with a gem of English prose, and says, "These trifling matters add to the number of mistakes which Antommarchi's book are replete with."

Both the official report, and that of Henry, speak of a small adhesion to the diaphragm, and with the direct contradiction of Rutledge it is impossible to believe that Antommarchi has stated the truth in his description of the condition of the liver and its capsule. Dr. Burton, in a letter in the "Lowe Papers" (vol. 20,214), tells us that Antommarchi expressed himself in agreement with the official report when it was read over to him, but on the advice of Count Bertrand, refused to sign it. Rutledge was the junior surgeon present at the autopsy, and it is quite conceivable that to him would be deputed the

unpleasant work of removing the organs from the body preparatory to their examination.

To show how dangerous it was, not only to act, but even to think, in a manner contrary to the official view, the *post scriptum* of a letter from Lowe to Lord Bathurst (vol. 20,133, f. 170) may be quoted. Dr. Shortt had so far forgotten his official duty, that he had the temerity to say that he thought the liver was enlarged, while Arnott, who had been longer with Lowe, stoutly maintained that it was normal. Lowe, therefore, writes:

> Dr. Arnott has appeared to me to have conducted himself as a perfectly upright and honest man in not encouraging the desire evinced to ascribe the disease to the liver, and showed his judgement also in having an opinion to the contrary. Dr. Shortt, however, thought the disease proceeded from the liver, without his having even seen the patient alive, but he feels a little ashamed, I believe, of the opinion he has expressed.

But Arnott's reign of favour was short-lived, for when he published his book in 1822, both Lowe and Reade fell foul of him for having the imprudence to say that the followers of Napoleon evinced sorrow at his death, and were devotedly attached to him.

A masterly criticism of the "Lowe Papers" can be read in *A Polish Exile with Napoleon*, by G. L. Watson, and all interested in this subject would do well to consult it.—I am, etc.,

London, Jan. 20th. ARNOLD CHAPLIN.

SIR,—With reference to the lecture of Professor A. Keith published in the BRITISH MEDICAL JOURNAL of January 11th, it may interest your readers to know that there is a case of tooth instruments in the museum of the Royal Army Medical College, Millbank, S.W., accompanied by a card bearing the following inscription: "A case of tooth instruments which belonged to the Emperor Napoleon the First. The case is incomplete, but contains eleven instruments and five key extractor claws. Presented by Inspector-General J. Paynter, to whose father the case was given by Dr. Barry O'Meara, the ex-Emperor's medical attendant at St. Helena."—I am, etc.,

London, S.W., Jan. 22nd. F. S. IRVINE, Major, R.A.M.C.

THE INTRACELLULAR PARASITES IN SYPHILIS.

SIR,—Since my paper on this subject appeared in the BRITISH MEDICAL JOURNAL on December 14th, 1912, I have received a number of letters concerning it, and some have appeared in the columns of the JOURNAL. The writers either state that they have confirmed some of my observations or that they have already seen, and in some cases have published, one or other phases of the structures I described in human syphilis. As I stated in my paper, many observers have described "bodies" in the lesions of human syphilis, and some have noticed "threads," "flagella," "tails," etc., but they do not seem to know what these bodies are. The latter are usually described as "pseudo-parasites," "perhaps parasites," "possibly parasites," "symbiotic structures," "vacuoles," "in my opinion they may be parasites," etc.

But this is not the point. It is not sufficient to find "bodies" in the lesions of a disease in one species of animal for them to be accepted as the causative agents of that disease. In the case of protozoal parasites some diffidence has always been exhibited before such have been accepted generally as disease-producing parasites because of the difficulty of applying Koch's postulates to the protozoa. More evidence is required than the mere finding of "bodies." It is even doubtful whether Schaudinn's discovery would have been accepted had not Metchnikoff and Roux inoculated syphilis into apes and again found the spirochaetes in the lesions produced. Indeed, it is not sufficient to see different shaped bodies in any one species of animal and to weave them into a life-cycle.

The point is this: What are the "bodies" seen outside and within the cells of the blood and lesions in primary and secondary syphilis? Are they parasites, and have they any connexion with the organism known as *Spirochaeta pallida*, which is generally accepted as the causative agent of syphilis?

I have said that the bodies I have found are parasites. This is because they have been found in five different species of animals, and because they are accompanied by similar lesions in four of those species. I have named these parasites Lymphocytozoa, and I am publishing my reasons for the name in the forthcoming volume of the collected papers of these researches. We are a step further than the mere finding of "bodies." We now know the phases of the homologous blood parasite of guinea-pigs, which constitute the cycles of schizogony and sporogony. This has enabled us to name the guinea-pig parasite *Lymphocytozoon cobayae;* the gametes are spirochaetes, and these are formed in a definite manner. A similar parasite, *Lymphocytozoon lumbrici*, has been found in the vesiculae seminales of earthworms; these also have a spirochaete phase developed in the same definite manner. Another prototype, *Lymphocytozoon pallidum*, has been found in the blood of cases of human syphilis, and these also develop into spirochaetes in the same way as the parasites of guinea-pigs and earthworms. Similar parasites have been found affecting rabbits and hares (*Lymphocytozoon leporis*) and rats (*Lymphocytozoon muris*). All these different species of the Lymphocytozoa resemble each other very closely in all their phases, and each species possesses gametes which are indistinguishable from spirochaetes.

In addition, the animals infected with these parasites—human beings, rabbits, hares, guinea-pigs—show lesions which also resemble each other, and which are the same as those of human syphilis.

Lastly, these parasites have been found in the circulating blood as well as in the lesions of the various animals infected. Two hundred consecutive cases of human syphilis have now been examined, and *Lymphocytozoon pallidum* found in every case. This same observation applies to all the animals showing similar lesions—the species of lymphocytozoon peculiar to the animal has always been seen. Moreover, so far as can be determined at present, these parasites—in human beings, rabbits, guinea-pigs—are amenable to treatment with mercury and arsenical compounds.

Therefore, I think we are now justified in naming these "bodies" parasites, and regarding their presence as diagnostic of disease in the various animals concerned, including human syphilis.

In consequence of several requests it has been arranged with Messrs. Evans, Sons, Lescher, and Webb, of London and Liverpool, to supply at a small cost jellies ready made for the examination of these parasites.—I am, etc.,

E. H. ROSS.

The John Howard McFadden Researches, S.W., Jan. 20th.

"OXYTOCIC."

SIR,—May I protest against the incorrect spelling of a word which occurs in a headline of the current BRITISH MEDICAL JOURNAL—"Pituitrin as an Oxytoxic"? I have only seen the word once before, also misspelt, and it would be well to correct the error before it becomes widespread. If spelt rightly, "oxytocic," it might be a valuable word possessing the Greek characteristic of condensing into one word a whole sentence, "causing to bring forth quickly." The Greek ὀξὺς means sharp, keen, swift, all suitable adjectives to apply to childbirth, not excepting the last, if pituitrin fail us not. The latter half of the word is derived from τόκος, birth, and the Greek κ in English usually becomes *c* (not *x*), which gives us "oxytocic." Spelt "oxytoxic" the word can only have one meaning, "acting as a swift poison," and in these days of toxins there is much danger of misapprehension arising.

The etymology of the word "toxic" is interesting. It meant originally "of or pertaining to the bow," and hence was applied to the arrows which were tipped with poison, but the word was not used in this connexion by the classic Greek writers.—I am, etc.,

Birmingham, Jan. 19th. H. EWAN WALLER.

ANTIVIVISECTION IN GLASGOW.

SIR,—I do not propose to bandy words with Dr. Walker over personalities and trivialities which can serve no useful purpose, and which have no bearing upon the subject I dealt with in Glasgow. Nor is it necessary for

me to disprove again statements which he only repeats, apparently under the impression that repetition will make them true. Your correspondent has so sufficiently answered himself that any further rejoinder from my pen is scarcely required. I therefore confine myself to the particular point regarding which he says he has secured "positive evidence" against me.

He again declares in regard to my lecture that "another part was devoted to the immorality of drinking alcohol and the uselessness and danger of vaccination." I again reply: "This assertion is simply amazing and almost unpardonable; not one word about alcohol drinking or vaccination escaped my lips the whole evening." He produces, as evidence, an anecdote I gave after my lecture was concluded, in reply to an observation from himself in which he sneered at my being almost alone in my opposition to vivisection, and asserted that I had practically the whole of the medical profession against me. The anecdote, as his own quotation shows, had nothing whatever to do with "the immorality of drinking alcohol," but merely went to show that a minority in one generation became converted into a majority in the next. His inability to grasp the point of my argument I can only attribute to the extreme state of nervousness which appeared to possess him at the time.

Similarly in regard to vaccination, not a single word on the subject was mentioned by me in the course of my lecture. I simply stated, in reply to a question subsequently put to me by some one in the audience as to whether I believed vaccination to be a protection against small-pox:

> Perhaps my best answer to that will be that I have probably mixed with as much small-pox as any medical man in this city, and yet I have neither been vaccinated nor contracted the disease. My own experience has convinced me that vaccination is no protection against it.

To say, as Dr. Walker does, that I "spoke at length upon both these subjects," is positively false. I never mentioned them. My lecture dealt wholly and solely with the subject of vivisection in its various aspects. Your correspondent, upon the other hand, dealt only in side issues, mostly of an irrelevant nature, as he seeks to do now.

Dr. Walker appears incapable of construing even a written statement correctly. His faculty for turning things upside down is in the following instance highly amusing. He says:

> That Dr. Hadwen should consider the recovery of a micro-organism from the body of an individual inoculated with this organism as an astounding feat is more surprising than the feat itself, which any one with any experience in a pathological laboratory must have seen performed hundreds of times as a matter of routine.

Permit me to say I see nothing "astounding" in the "feat," nor could I have believed that my ironical remark at Dr. Walker's expense could possibly have been taken seriously! He must be strangely deficient in sense of humour. Even had I possessed no laboratory or medical experience whatever, I should have had no difficulty in subscribing to the simple and self-evident proposition he has so laboriously advanced.—I am, etc.,

WALTER R. HADWEN, M.D., J.P.,
President British Union for Abolition of Vivisection.

Gloucester, Jan. 20th.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

THE following degrees have been conferred:

M.D.—G. Browse.
M.B., B.C.—E. G. S. Cane, W. T. C. Pearce, Ff. Roberts.
B.C.—J. W. Joint, G. M. Parker, F. B. Smith.

UNIVERSITY OF LONDON.

THE name of the following successful candidate should be added to the list previously published:

Third M.B., B.S.—Vincent Glendining, Guy's Hospital.

KING'S COLLEGE.

Special Lectures in Physiology.

A course of four lectures on recent advances in chemical physiology and pathology will be given by Dr. Otto Rosenheim in the Physiological Laboratory, King's College, on the following Monday afternoons at 4.30 p.m., beginning on February 3rd. The lectures are free to all medical students in London medical schools, and to all internal students of the University of London, and to medical men on presentation of their cards.

UNIVERSITY OF LIVERPOOL.

Professor Hebblethwaite.

IT is with great pleasure we congratulate Professor Hebblethwaite, Registrar of the University, on his return to work at the university after a term's leave of absence owing to illness. Delighted with his recovery, we join in wishing him many more years of health and ability to do the work to which he is so devoted. The work of the University Settlement is progressing well in the newly erected buildings. In the south end of Liverpool the warden and his colleagues are busy with their social work. There is still a debt of £1,000 upon the building, and a sum of £3,000 is necessary and urgently needed for endowment. Those who are interested in the work sincerely hope that the funds will be forthcoming, and that the work will not be crippled for want of them.

Public Lectures.

The following public lectures will be delivered during the Lent term: At 8 p.m. on January 24th Dr. T. R. Bradshaw will lecture on "Some Aspects of the Doctor and his Work." Professor Ernest Glynn, the newly appointed Professor of Pathology in the University, will deliver his public inaugural lecture at 5.30 p.m. on February 21st, and he has chosen as his subject, "The Study of Diseases in Domestic Animals and its Importance to the Community." On March 7th, at 8 p.m., Dr. Kenneth Forbes, Lecturer in Education in the University, will lecture on "Convention and Conventionality in Teaching." All these lectures will be delivered in the Arts Theatre, and admission is free without ticket.

Prize Essay.

Mr. Robert Caspe, a medical student in his second year, has been awarded the first prize in a competition organized by the Home University Library for an essay on the value and use of such a library. Mr. Caspe is to be congratulated upon his success in an open competition of this character.

UNIVERSITY OF GLASGOW.

Final Year Medical Dinner.

A COMPANY of 140 attended the "Final Year Medical Dinner," held in St. Enoch Station Hotel on January 14th. Professor W. K. Hunter presided, and there was a good gathering of the medical professors and lecturers, including Professors Samson Gemmell, Sir Wm. Macewen, Murdoch, Cameron, Muir, Glaister, Stockman, Munro Kerr, Bower, and others. A capital souvenir programme was prepared, illustrated by topical sketches, one of these, entitled "Childe Harold to the dark tower came," depicting the fortress of "General Practice," with a sinister figure of Mr. Lloyd George crouching behind the left wing of the tower, and flourishing a deadly-looking bludgeon. A photo gallery of "Men of the year" (1908–13) was also given, with a list of their names, and opposite each a more or less descriptive couplet. The list of guests was also provided with classic and other quotations for each. After the loyal toasts Mr. Ian D. Grant proposed "Alma Mater," which was responded to by Professor Samson Gemmell, who took occasion to refer to the affiliations which he said were in the air. The Technical College was to be affiliated; music, too, would soon have affinities; and he thought there was no reason why the Veterinary College should not come in also, and bring the university up to date. Professor Ralph Stockman replied for the guests, and Dr. J. Crawford Renton proposed "The Year," which was acknowledged by Mr. William A. Brechin.

General Council Register.

The Register of the General Council of the University of Glasgow for the year 1913 contains the names of 8,546 members, an increase of 301 on the previous year. At the annual revision 409 names were added, and those of 108 deceased members removed, including three who died respectively in 1892, 1899, and 1900, regarding whom information had only recently been received. There is still much room for improvement in the matter of intimating deaths and changes of address; no fewer than 187 reports last October were returned through the Dead Letter Office.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have been approved in the subjects indicated:

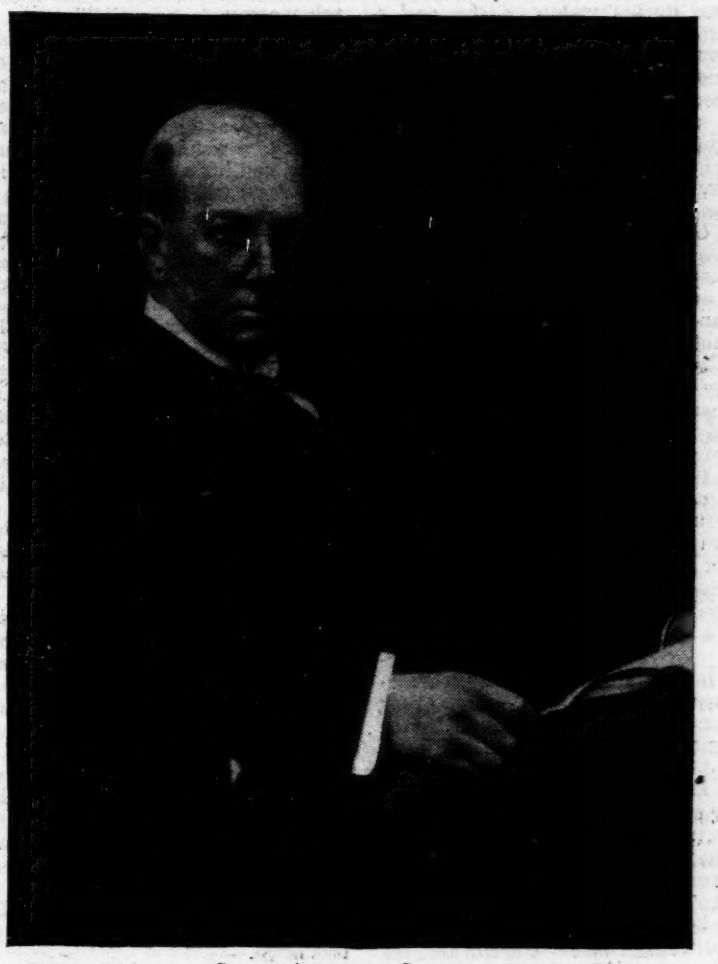
MATERIA MEDICA AND PHARMACY.—J. C. P. Bayley, J. D. Ferguson, C. T. Gasking.
ANATOMY.—J. B. Fairclough, J. D. Ferguson, L. Kahan, G. Noott, N. W. Rawlings, J. Totton, G. C. Wright.
PHYSIOLOGY.—C. G. Bunn, J. D. Ferguson, W. Fox, H. C. C. Hackney, L. Kahan, G. Noott, N. W. Rawlings, J. Totton, G. C. Wright.

Obituary.

GEORGE ALEXANDER GIBSON, M.D., D.Sc., LL.D., F.R.C.P.E., F.R.S.E., Etc.,

EDINBURGH.

We regret to have to report the death of Dr. George A. Gibson, of Edinburgh, which occurred at his residence, 3, Drumsheugh Gardens, early on Saturday morning, January 18th. He took an active part in the work of the Annual Meeting of the British Medical Association in Liverpool last year, for he not only gave the Address in Medicine on the Relations of the Circulation, but also introduced a discussion on non-valvular cardiac disease. He had himself suffered for several years from cardiac disease, and in August last his health broke down, and, though he struggled bravely and hopefully on, the end has come before he had reached 59 years. He had led a constantly strenuous life. After his breakdown in August a cruise to Norway was suggested, but it brought no improvement. Thereafter complete rest was recommended, and for a time it seemed as if he were going to rally, but some three weeks ago these hopes were shattered; there was growing weakness and gradual decline.



Photograph by] GEORGE ALEXANDER GIBSON. *[W. Crooke, Edinburgh.*

George Alexander Gibson was a native of Perthshire, and was born on January 27th, 1854, at Kelliebank, Muckhart, in that county. He was the eldest son of George Gibson, solicitor, Alloa. He was educated at Dollar Academy and at the Universities of Glasgow and Edinburgh. The Bar, for which his father destined him, did not attract him, and he took to scientific studies, with the result that he graduated B.Sc. at the University of Edinburgh in 1874. From 1874 to 1877 he held the Falconer Memorial Fellowship. In 1876 he had gained the degrees of M.B., C.M.; in 1877 the degree of D.Sc. He became F.R.C.P.Edin. in 1880, and graduated M.D. in 1881. In 1876 he was appointed a resident physician to the Royal Infirmary of Edinburgh. Thereafter he studied at Dublin, London, and Berlin. In July, 1878, he was appointed assistant physician to the General Hospital, Birmingham, but only retained the appointment till the end of the following year, when he settled in Edinburgh. Soon after he became lecturer in the extra-academical school. Then followed his appointment to the staff of the Royal Infirmary, where he remained for twenty-two years; at the time of his death he was senior physician. For ten years he was one of the physicians to the New Town Dispensary, and on its foundation he became physician to the Deaconess Hospital; this position he held for three years, when he was appointed consulting physician. He was principal medical officer to the Life Association of Edinburgh.

For some three years he was tutor in clinical medicine in connexion with the extramural school; for five years he was a lecturer in materia medica, and later a lecturer on the principles and practice of medicine in the same school. In 1897 he became one of the lecturers on clinical medicine in the Royal Infirmary. During these years he visited the universities and hospitals at home, as well as those of France, Germany, Italy, and America, in order to make himself more fully conversant with the methods prevailing in other medical schools.

He was honorary medical referee for the National Hospital for Consumption at Ventnor, lieutenant-colonel 2nd Scottish General Hospital of the Territorial Force, and a member of the Royal Company of Archers, the King's bodyguard in Scotland. He was at various times examiner in medicine for the Universities of Glasgow, Edinburgh, and Oxford; inspector of examinations for the General Medical Council. He had earlier been a demonstrator of anatomy in the University of Edinburgh.

He wrote many articles in the medical periodical press, and was himself for some time editor of the *Edinburgh Medical Journal*. He wrote many articles for the last edition of the *Encyclopaedia Britannica*, for the *Textbook of Medicine*, and for other works. With Dr. William Russell he was joint author of *Physical Diagnosis*, third edition, 1902. He wrote books on *Cheyne-Stokes Respiration* in 1892, on *Diseases of the Heart and Aorta* in 1898, on *Nervous Affections of the Heart*, second edition, 1905, based on his Morison Lecture to the Royal College of Physicians of Edinburgh in 1902–3. This last book was translated into German. Quite recently he published a volume entitled *Memorials of Sir William Gairdner*, to which Sir Clifford Allbutt makes some references below.

At the age of 23 he was elected President of the Royal Medical Society and of the Dialectic Society of the University of Edinburgh. He was at one time Honorary Secretary to the Edinburgh Branch of the British Medical Association and also of the Medico-Chirurgical Society of Edinburgh. At the meeting of the British Medical Association in 1898 he was vice-president in the Section of Medicine. For ten years he was secretary to the Royal College of Physicians of Edinburgh; subsequently he was on the Council of the College, and had he lived he would this year have been its President. He had been a member of the Council of the Royal Society of Edinburgh, Vice-Chairman of the Governors of the Medical School of the Royal Colleges, a director of the Town and Gown Association, inspector of examinations in Ireland under the General Medical Council, and a special commissioner appointed by the Local Government Board in connexion with the examination and registration of trained nurses. He was an honorary member of the Medico-Chirurgical Society of Norwich, and Correspondent Etranger d'Honneur de la Société de Thérapeutique de Paris. He received honorary degrees from many universities—the M.D. from Dublin, the B.Sc. from Harvard and Liverpool, and LL.D.

from St. Andrews and McGill. He was also an honorary F.R.C.P. of Ireland.

Such is the scaffolding of his life's work. But what of the filling up? He was a man of many interests and boundless energy. He was never at rest. He had always something on hand, and so wore himself out before his time. Apart from his outstanding position in the medical profession, he was a man of culture and of wide reading in general literature. He was not a man of one book. He was interested in everything. He was a most genial companion, of happy disposition, and an excellent friend. He saw the best in everybody. His friends were innumerable, both at home and in America. His teaching was of a high order, and he was a favourite with his students, in whom he took the greatest interest. He was interested in most field sports; latterly curling, fishing and golfing attracted him most. He was a member of the Honourable Company of Golfers, and was frequently seen on their course at Muirfield. He was a member of the University Club.

Dr. Gibson is survived by his widow, a son and a daughter.

The funeral took place from St. George's Church in Charlotte Square on Tuesday afternoon, where there was a very large congregation representing the two Royal Colleges of Physicians and Surgeons, the Territorial Forces, and the general public.

Sir CLIFFORD ALLBUTT, Regius Professor of Physic in the University of Cambridge, has written the following appreciation of George Gibson's life and work for the JOURNAL:

The shock and distress of the announcement of the death of George Gibson are such as, for the present, to make us silent rather than vocal in our sorrow. My words must be few. It is not many weeks since Gibson's affectionate and interesting life of Gairdner came into our hands; and for many of us who knew both men well, and who are suffering year by year in the passing of old comrades, there is a still deeper note of sadness in this passing, as it were, of two generations from us. It seems but the other day that Gibson and I were sitting with Gairdner, then nearing death, in his house in George Square—Gibson his skilful and devoted physician, I a visitor to him for the last time. That austere and kindly home, under the shadow of his old University, was a type of both men, of the best of Scottish men. Dear Gairdner, one eye blind, the other armed with a strange conical shield, was on our entrance still undauntedly searching in some treatise of medicine for more light; and it was characteristic of both men that in this crisis of their deep affection they so ruled their hearts as to follow together every trace and winding of the elder man's malady; Gairdner acutely analysing every one of them as dispassionately as if the case were that of a hospital patient. Again the best of Scottish life—earnest and loyal, deep and true.

And with the same strength above passion, not many years later Gibson in his turn had to watch over his own dissolution: again by a heart disease, again in the very sphere of medicine which each had made his own, winning knowledge for us and honour for himself. Three years ago it would have been an unmixed joy to me to find near ourselves, then at Ambleside, Gibson and his family, at Lowwood, had he not been there, as a friend had forewarned us, on account of a breakdown in health. For no man could the prospect of long and healthy life have seemed brighter; but the action of his heart had been much disturbed, and myocardial change more than suspected. Dispassionately watching, as I have said, his own symptoms, he ascribed them to influenza—an opinion which seemed a probable one. It is true he had worked very hard; he had poured into his teaching, his large private practice, and his original researches all his gifts of energy, skill, and insight; and his private practice carried him far and wide over Scotland. But in my experience, both personal and medical, hard work hurts no healthy man, so long as he lives, as Gibson did, a physiological life. He was naturally a man of powerful frame and untiring energy, and in his happy home free from all worries. It seemed probable, then, that influenza, or some other such toxin, must have cut in upon him; and it was with some apprehension that his son and I witnessed his brave if rather wilful determination to reinvigorate his heart, then, as we all hoped, convalescent, by climbing, methodically no doubt, the fells behind his hotel. However, the method seemed to be justified. He returned to work, and I presumed his recovery to be complete until we heard that his amendment had not endured. And a letter from Mrs. Gibson was by no means reassuring; so it was with more regret than surprise that a few weeks ago I heard from Dr. James Ritchie that his condition had grown so far worse that there were grave fears for his life.

George Gibson had done much scientific medical work, and much inspiring teaching and research; and much more yet was, we hoped, to have come from his hands. A while ago, in answer to my inquiry, he told me that he had not yet perfected his large recording sphygmometer, on Erlanger's pattern, but was still at work upon it. It is hard to believe that all these labours, these teachings, this devotion to the sick who looked to him for succour, are finished; and we are too prone to murmur at the dispensation under which those whom we can least spare are taken away.

It is not yet time to appreciate Gibson's work in all its bearings; like himself it was strong, orderly, and accurate. In a recess in his library was preserved a remarkably complete series of books on diseases of the heart; he knew them well, and gave to the contents of each its due place in his own writings. Happily much of this survey he had made, and his admirable work on *Diseases of the Heart and Aorta* will keep its place also among the classics. But again, it is not the time yet for such reckonings and comparisons; we his many friends can now feel only that a strong, true, warm-hearted, and learned colleague has been taken from us. To me Gibson was twice a friend, a dear friend in himself, and a memorial of Gairdner, for in him much of Gairdner seemed still to live.

Dr. WILLIAM RUSSELL (Edinburgh) writes:

It is unnecessary to enlarge upon the loss that Dr. Gibson is to the Edinburgh School of Medicine and to Scottish medicine. What is wanted from me is a personal estimate and appreciation of a man who has been a friend for forty years. In acceding to the request of the Editor of the BRITISH MEDICAL JOURNAL, I do so in that capacity, and in the hope that my words may in some degree express the feelings of many of his friends.

Gibson began his medical studies in Edinburgh after spending two years at Glasgow University, and at the outset was marked out from most of the men of his year as a student of science as well as of medicine. He had an excellent brain and a retentive memory, which made the details of science easy to him, so that at the end of his second year as a medical student he not only took the B.Sc. degree, but was awarded the Falconer Memorial Scholarship in Geology. This in itself made him a prominent figure amongst us. But this was only one side of him; the other side made his personality distinctive—he had a fine athletic figure, which he carried with grace, while he had the open, frank, friendly, and somewhat rollicking manner of a young man prepared to be on good terms with his fellows, and evidently looking at life in a spirit of the utmost friendliness. Everyone knew Gibson, and his circle of acquaintances was large.

Our friendship was formed at the end of our first summer in medicine, on board a steamer going to the North of Scotland, and the remarkable tenacity of his friendships was strikingly illustrated in our earlier relations, for it was he who kept us from drifting apart in those days. Looking back, as one has often, one has recognized how the faculties of mind, the genial, forceful, and yet easy bearing of those early days naturally developed into the erudite physician and the strong, yet sympathetic, and gracious bearing of the esteemed consultant. His personality was exceptionally attractive, and most people acknowledged it. He had nevertheless ardent dislikes and strong antipathies, and he carried into them the same frank and forceful manner. When he despised men and methods he did so openly, for he was no compromiser between what to him was upright and straight on the one hand and mean and crooked on the other. He always stood, and stood openly, on the side of honour and truth. For the lower forms of self-seeking he had the greatest contempt. The openness and frankness and easy courage of his manner often enabled him to

speak unpalatable truths without arousing a deadly animosity. In all medical affairs he took a keen interest and an active part, and was ever ready to give a helping hand to any good work.

As regards the professional side of Gibson's life, the most outstanding characteristics were his great devotion to the science as well as the practice of his profession and his extraordinary love of work; the latter was almost a form of dissipation with him, in so far, at least, as that he ignored the fact of the strongest of bodies having its physical limitations. The work he published had always a literary distinction and displayed the man of erudition and of critical faculty. There was no mistake about that, however much you might differ from his judgement. He was a great student and a cultured exponent of what to him was the truth in the particular department of medicine he might be dealing with at the moment. His chief interest, although by no means his only interest, was centred in cardiac diseases. The inspiration of this came from Dr. G. W. Balfour, to whom Gibson had been a house-physician in the old Royal Infirmary. It was in this department that he made his earlier reputation, but Gibson never took up the narrow and restricted view of the "specialist." The whole field of medicine attracted him.

As a teacher of students, a man such as I have endeavoured to outline Gibson as being was bound to be popular and to attract many to his clinics, and this he did. The students were fond of him, and his house-physicians and clinical clerks were devoted to him in a special measure. He had the faculty of knowing them by name and remembering them; he was ever ready to help them, and he kept in touch with many of them scattered all over the world. The statement that no one can take Gibson's place in the affection of his friends seems like a platitude, yet it means that no one compared Gibson's personality with any other—it was unique: he was Gibson, and we knew him and we loved him.

Mr. JAS. W. B. HODSDON (Edinburgh) writes:

The whole world of medicine is familiar with the work of the late Dr. George A. Gibson as an investigator, an author, and a cultured and skilled physician; while the academic distinctions conferred upon him at home and across the seas were an acknowledgement of his scientific attainments.

In the later Seventies, in the anatomical department of the old university buildings, where a second year's man was dissecting, a tall and somewhat spare demonstrator with a breezy and kindly manner offered to help the student with his difficulties.

From that day a friendship began between the writer and George Gibson which became closer and more intimate after Gibson's return to Edinburgh from Birmingham. For well over thirty years we have been closely associated in public and in private, and in writing a short appreciation of Gibson one would refer to the latter rather than to the former and to his interests in the Edinburgh Medical School.

The debt which the Edinburgh School of Medicine owes to him is one which the present generation of teachers hardly can recognize.

The school founded by the Royal College of Surgeons, which had given the first professors to the newly-established medical faculty of the university, had gradually been dissociated from the Royal Colleges and had resolved itself into a mere collection of separate teachers. It had no position as a whole and no form of government. Gibson was far-sighted enough to see that in such a state it could not maintain its position, and he threw himself with all his wonted energy into a scheme of reform whereby it was made a homogeneous whole and was again brought under the aegis of the Royal Colleges. The result was that when the Carnegie Trust was instituted the School of Medicine of the Royal Colleges was in a position to represent its claims and to secure the benefits which it now enjoys on equal footing with the universities. For many years he was Chairman of the Business and Finance Committee; he was from its institution a member of the governing board of the school, and at the time of his death its chairman.

From the first Gibson was one of the promoters of the foundation of the Royal College of Physicians' Research Laboratory, and his unfailing support has had much to do with making it the success it has become.

He was one of the founders of the Pathological Club—that most successful of informal societies—and, in its early days, one of its strongest supporters and most regular attendants, and none of those who can recall these early meetings will forget the enthusiastic and genial way in which he threw himself into the discussions, bringing to the subjects touched upon his wide knowledge of science and of medicine and his keen intelligence.

He was the representative of the Royal College of Physicians on the General Medical Council, and when he took his seat last May he was welcomed by his colleagues as one who, by his thorough knowledge of educational affairs, sound judgement, and genial presence, would speedily become a valuable and prominent member of that body.

Gibson had the welfare of the medical student at heart, while his ability and culture as a clinician attracted to his wards the best type of men in every respect. To them he was counsellor and friend as well as the beloved teacher, and his memory will ever be held in affection where Edinburgh men are gathered. There are scattered throughout the empire not a few successful practitioners who can directly attribute their success to the influence, advice, and help of George Gibson. He set them a noble example. The very soul of honour in his dealings with all men, he abhorred meanness, scheming, and self-seeking, and when occasion arose he would denounce such in no measured terms.

Gibson's relations to his patients all through his professional life were characterized by an unselfishness and devotion which made him beloved of all; he never spared himself—it was sufficient that a fellow-creature required his assistance, and he gave his best, even to the humblest. We have heard his entrance into a sick-room described as a "ray of sunshine." Had he considered himself more and husbanded his strength in recent years when the calls upon his time became greater and greater he might have been with us to-day.

He was a many-sided man whose interests were not confined to medicine: widely read in the classics and in general literature, his ready and fluent speeches were embellished by apt quotations. He had travelled much at home and abroad, and readily made widespread and enduring friendships. He loved, however, best of all, the hills and straths of his native land, and was well versed in its traditions and folk lore. To those of us who had the privilege of enjoying his intimate friendship, the most vivid memories must be of George Gibson in holiday time, when, throwing aside professional cares, he became the jovial boy he remained in heart to the end. His tremendous zest in life, his enjoyment of all the beauties of Nature, his overflowing generosity, his humour, his modesty, and his sincerity made him the prince of good fellows, while his wide general knowledge rendered intercourse with him a constant delight.

There is no one who can fill the blank caused by Gibson's death, while those who have been intimately associated with him in his professional and social life, who had reason to be thankful for his skill and devotion in the time of illness, who have been his companions on moor, on loch, or on golf links, cannot yet realize the extent of their loss.

Professor SAUNDBY (Birmingham), writes:

I should like to express my regret at the premature death of my old friend Dr. George Alexander Gibson, and my admiration for his character, ability, and attainments. My first recollection of him is when he joined the Royal Medical Society in the winter of 1874–5, but I did not get to know him well until four years later when he became my colleague as assistant physician at the General Hospital, Birmingham. Although after one year of service Edinburgh reclaimed him, our friendship continued up to his death. I have watched his progress with pleasure, and it was with especial satisfaction that I moved the vote of thanks to him at Liverpool last July, where he delivered the Address in Medicine, which is the highest scientific distinction that the Association has in its power to confer upon a physician. Some who were present may remember that he had difficulty in making himself

heard; this was partly, perhaps, due to the acoustic qualities of the theatre, but mainly because he was feeling exhausted. He told me that he was badly in want of a rest. He had been working very hard at his practice, for success had come to him, and he was in demand as a consultant all over Scotland. From Liverpool he went straight to join a steamer for a holiday in Norway and Sweden, planned so that his journey might be taken everywhere by water. It seemed likely to afford him the physical repose he needed, yet he returned home so ill as to be obliged to go to bed, and, although by the end of November he was able to take walks of some miles, the improvement unhappily did not prove permanent. His loss is great not only to his family and his friends, but to the medical world of Edinburgh and to all who are interested in the scientific progress of medicine. His life has been all too short, and his early death has robbed him of the harvest he had so well earned. His numerous contributions to the science of medicine are well known and will survive him. Had he lived he would undoubtedly have succeeded to such posts of honour as his University and the College of Physicians have it in their power to bestow. He was deservedly popular, for a more frank, joyous, generous, unselfish man never lived. He had an inexhaustible fund of humour, was an excellent after-dinner speaker, a charming companion, and a faithful friend.

Non, Torquate, genus, non te facundia, non te restituet pietas;
Infernis neque enim tenebris Diana pudicum liberat Hippolytum
Nec Lethaea valet Theseus abrumpere caro vincula Perithoo.

Dr. JAMES MACKENZIE writes:

It was with the deepest regret that I heard of Dr. Gibson's death. It was known that he had been ailing for some months, but the news of his death has caused a great shock to many of his friends. Until lately he had been so full of buoyant energy, and led such an active and strenuous life, that it is difficult to realize that he has gone.

His whole life has been one of tireless energy. In the early days of his professional career he laid the foundations of his great reputation by long and patient investigations, both clinical and experimental. A good deal of the work of those early days has not been properly appreciated—such, for instance, as his investigations into the nature and causes of the incompetence of the valves of the heart. Although in later years his researches were confined to the clinical field, his interest in and appreciation of experimental work never abated, and few people had such a thorough grasp of the advances which have been made in the various fields of clinical medicine.

In the department of cardiology probably no one had such a familiar acquaintance with the writings of authorities, from the earliest to the most recent times. He could always tell the origin and development of any idea which had a recognized place in the clinical or experimental world. His own writings were always characterized by a wealth of illustration, and this was not confined to those taken from scientific authorities, for he had laid under contribution the whole field of general literature in order to embellish and illustrate his meaning. Thus it was that his contributions to medicine were graced with an attraction that compelled attention for their literary as well as their scientific merits.

The commanding position which he held in the profession was world-wide, not only by reason of his scientific attainments, but also from the remarkable character of the man himself. He was not only a man of wide culture, but he was possessed of a genial humour which ever and anon lighted up the subject of his discourse. Those who were brought into intimate contact with him felt his peculiar charm. Large-hearted and genial, he was a man to rejoice with, and a man whose cheerful disposition invariably brightened his surroundings; he was a man, too, of great kindness and truly sympathetic, as those who in distress have met him well know. His self-sacrificing disposition was almost proverbial, for no one ever appealed to him in vain, and many a one could tell of infinite labour and trouble he has given in order to help a friend in difficulties.

While the world may deplore the loss of a distinguished and cultured physician, those who knew him deplore the loss of a big-hearted and lovable man

J. E. GARNER, M.D.ABERD.,

PRESTON.

WE have the very great regret to record the death of Dr. J. E. Garner, Representative of the Preston Division of the Lancashire and Cheshire Branch. In that capacity he attended the Special Representative Meeting on January 17th and 18th. He returned home on Saturday evening apparently in his usual health, but on Sunday morning suffered an apoplectic seizure, to which he succumbed on the following day.

John Edward Garner was the son of Captain John Garner, R.N., and was born sixty years ago in Aberdeen. He received his education in the university of that city, and graduated M.B., C.M. in 1873, in which year he was appointed junior house-surgeon to the Preston Royal Infirmary. In the following year he became senior house-surgeon, a post he retained until he entered private practice in Preston in 1876. In 1881 he proceeded to the degree of M.D., and in 1886 was appointed honorary medical officer of the Preston Royal Infirmary. For over thirty years he had been medical officer of the first district of the Preston Union. He was an active member of the British Medical Association, in the work of which he took a great interest, and was a member also of the North of England Obstetric and Gynaecological Society.

Dr. Garner was much interested in the various phases of Church work. For over twenty years he was vicar's warden at St. James's Church, and took an active share recently in raising a special fund for beautifying the interior of the church. His interest in sport was shown by his being one of the founders of the Preston Golf Club, of which he was captain from 1895 to 1905; on resigning that office the members presented him with his portrait, which now hangs in the club-house. He was a member and had been president of the Curling Club, and was a member of the Bowling Club. The Preston Board of Guardians, at its meeting on January 21st, adopted a vote of sympathy with the family of Dr. Garner, who was senior medical officer of the union. Dr. Garner leaves a widow, three daughters, and two sons, one of whom, Dr. Colin Garner, has for several years been associated with him in practice.

C. W. MARRIOTT, M.D.ST. ANDREWS, M.R.C.P.LOND., F.R.C.S.EDIN.,

READING.

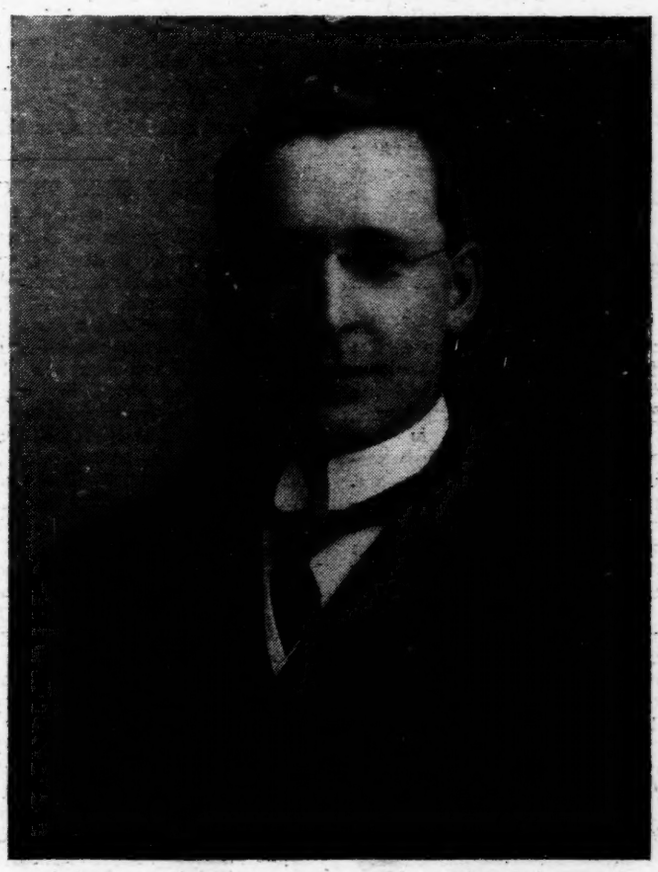
DR. MARRIOTT, who was Representative of the Oxford and Reading Branch of the British Medical Association in 1905–6, died on January 9th, his 80th birthday, after a short illness. He was born at Leamington on January 9th, 1833, and educated at Bedford. He studied medicine at University College Hospital, and afterwards at Paris. He then began practice in his native town, where he remained until 1891, when he went to Reading. He was appointed a physician to the Royal Berkshire Hospital in that town, and held that post until the end of 1912. Dr. Marriott was a justice of the peace for Berkshire, consulting physician to the Helena Nursing Home, and to the Berkshire Friendly Society, and a medical visitor in lunacy for Berkshire. He was also physician to the Queen Victoria Institute and County Nursing Association. Besides holding these civilian appointments, Dr. Marriott was surgeon to the old Warwickshire Militia, which afterwards became the 4th Battalion of the Royal Warwickshire Regiment, and he retired as surgeon-lieutenant-colonel. He not only had a large private practice, but his total hospital work extended over fifty-four years, as in Leamington he had been for a long period associated with the Warneford Hospital.

Dr. Marriott was extremely popular both in Leamington and in Reading. He was a keen sportsman, and in his younger days an excellent shot. Dr. Lansdown Guilding, at a meeting of the Reading Pathological Society on the evening of Dr. Marriott's decease, referred to the great services which he had rendered to humanity, and to his kindness, his geniality, and his wit. Dr. Marriott was a very good friend, and he had that great virtue that no one ever heard him say an unkind word of any one. Though always active in hospital and private practice, Dr. Marriott wrote but little. He was a Churchman, and a Unionist in politics.

OWEN T. WILLIAMS, M.D., B.Sc.LOND., M.R.C.P.LOND.,

ASSISTANT PHYSICIAN, ROYAL INFIRMARY, LIVERPOOL.

IT is with deep regret that we have to record the sudden death of Dr. O. T. Williams, of Liverpool, Honorary Assistant Physician to the Liverpool Royal Infirmary, on January 15th, at the early age of 35 years, of acute pancreatitis. He was a native of Liverpool, and was educated at the Liverpool Institute and the Liverpool University. His career throughout his whole course of study at school and university showed one long unbroken record of brilliant successes. He entered the university as a county scholar from the Liverpool Institute, and during his period of undergraduate study at the university carried off every possible honour and distinction in scholarship available along his course. He graduated as Bachelor of Science, London, in 1900; in 1903 he obtained the degree of Bachelor of Medicine, with honours in medicine, and in the following year he took the M.D. The Membership of the Royal College of Physicians, London, was added to the long list of his achievements in 1907. In the years following his graduation Dr. Williams continued his study of the science of medicine in British and foreign schools of medicine, at the Universities of Liverpool, London, Berlin, and Johns Hopkins, Baltimore. Everywhere throughout his post-graduate career he earned the high esteem of those under whom he studied, and his ripe knowledge he placed freely and wholeheartedly at the service of Liverpool when he was appointed, in 1908, to the honorary staff of the Royal Infirmary.



Photograph by] OWEN T. WILLIAMS. *[Medrington's Ltd., Liverpool.*

The special province of medicine which claimed his devotion was the bio-chemistry of the processes of disease especially in relation to the problems of digestion and nutrition. Although his career, so full of brilliant promise, lasted for only a few years, he had already achieved a success which will endure in the annals of science. He was already a master in his science, and co-workers in the acquisition of knowledge of this newest branch of medicine throughout the scientific world will lament the calamity of his death no less keenly than his colleagues in Liverpool. Dr. Williams conducted his researches in the bio-chemical laboratory of the university, and he always had working under his direction a number of the younger graduates of medicine whom he had fired with some of his own enthusiasm for inquiry into the chemical problems of disease. He held the position in the university of lecturer on pharmacology and demonstrator of bio-chemistry, and in these capacities he endeared himself to all the research students by his willing help in every difficult problem. Full as his mind was of new ideas demanding the test of experiment, he always found time and energy to help others, to cheer them on to victory, and rejoice with them in their successes. It is this kindliness of heart and nobility of mind that all who knew him remember to-day, and this is the recollection of him that they will always cherish.

As it was in the laboratory, so was it on the other aspect of his life-work in the hospital. His wonderful ability as a teacher was prized by the students, his knowledge and skill as a physician were admired by his colleagues on the staff, but it was his depth of human sympathy which endeared him to every one around him, so that patients, students, nurses, and colleagues alike felt that he was a friend upon whom they could depend. Dr. Williams possessed one of the rarest gifts in medical science—a capacity for correlating clinical work and scientific observation—and his work in the laboratory always stood in closest relationship to his study of cases by the bedside. He was a master mind in both domains, and yet he never lost sight of the human aspect of his work. He took a deep interest in the lives of earlier workers in medical science, and the title of his recent memoir, "Christian Hertes, one who championed the cause of idealism in medicine," might be applied appropriately to his own life-work.

Professor BENJAMIN MOORE writes: On behalf of his colleagues in research at the Johnston Bio-chemical Laboratory of the University, may I be allowed in a few words to express our sorrow at the loss of our friend in life, and in the pursuits we have loved together? For ten years we had worked together cheering one another in the vicissitudes of our inquiries, and rejoicing together when discovery came to any of us; and now in the prime and glory of his strength he has gone from his labours, and no more shall we see his pleasant smile, or hear his voice to cheer us in the labours of the day. Yet he has left with us a thing of wondrous beauty, which will abide with us for ever untarnished by the flight of time. The memory of a noble life, filled with the highest ideals that our profession can give, remains with us like the thought of the beauties of an eternal springtime untouched by the breath of winter. He lived unselfishly for all that was highest in his science and all that was best and loveliest in life. The thoughts and aspirations that he planted in our minds can never die, and he in them will live in us, and from us pass to live in others.

GEORGE GRANVILLE BANTOCK, M.D.EDIN., F.R.C.S.EDIN.,

CONSULTING SURGEON TO THE SAMARITAN FREE HOSPITAL, LONDON.

THIS well-known gynaecologist, so prominent in the Eighties, when abdominal surgery was rapidly developing beyond the boundary of ovariotomy, and when Listerian surgery was at its apogee, died in London on January 15th after a lingering illness. Bantock was born at Dunrobin, Sutherlandshire, on October 10th, 1837, but was of a Suffolk, not a Scottish, family. He studied at Edinburgh University, worked as an unqualified assistant in England for three years, and being appointed surgeon to a whaler went on a cruise to Melville Sound, in Arctic America. He returned to Edinburgh, took the degree of M.D. in 1861 and the diplomas of L.R.C.S. and L.M.Edin. in the same year. He practised at Chester

for several years, but in 1865 went to London and was elected surgeon to the London Surgical Home. At that institution he soon distinguished himself for his manual dexterity, especially in plastic operations on the perineum and vagina. He also undertook ovariotomy with success, so that in 1869 he was elected physician for out-patients at the Samaritan Hospital, and assistant surgeon in 1877. In the middle of the next year Sir Spencer Wells retired, and Bantock and Knowsley Thornton became full surgeons. Bantock did not retire until 1896, six years after the hospital was built as it now stands in the Marylebone Road. Its previous quarters, so closely associated with Sir Spencer Wells's ovariotomies, were in Lower Seymour Street, Portman Square.

Bantock distinguished himself greatly in advancing the surgery of uterine fibromyoma. As the intraperitoneal treatment of the stump was associated with disastrous results thirty years ago, and panhysterectomy was rarely practised, he employed the serre-nœud with results good at that time, as the mortality in those days was very high. He was a great advocate of draining Douglas's pouch through the lower end of the abdominal incision, after Koeberlé's method. Foreigners used to visit the hospital in large numbers, and took great interest in his operations. The Italians in particular were impressed by his manner and his methods, and in return he learnt to speak their language with ease. Bantock was also highly popular in America. In 1887 he crossed the Atlantic, operated in American hospitals, and gave an address on abdominal surgery before the Canadian Medical Association. He was elected an honorary fellow of that institution and of the American Gynaecological Society, and was also associated with several similar learned bodies in Europe.

In 1883 there was a schism in the ranks of the Obstetrical Society of London, and he was one of the original members of the British Gynaecological Society, which was founded in December, 1884. He held the office of President in 1887, and his inaugural address, delivered on January 26th in that year, is preserved in the third volume of the *British Gynaecological Journal*. It was a condemnation of Listerism. The true secret and merit of that system, he contended, was the cleanliness which it ensured, but the spray and carbolic solutions were superfluous or even harmful. He had, we must remember, the high authority of Sir William Savory in support of his views. Further research has proved that neither were right in their arguments, although they reasoned right on wrong premisses. Antiseptic chemicals, it was found, do damage the tissues which they touch, and thus expose them under unfavourable conditions to infection. Absolute cleanliness was aimed at by Bantock, and he did his very best to ensure it, being one of the cleanest operators in London, but he flourished before it was found that asepsis can only be attained by a special technique, soap, nail-brushes, and filters being insufficient. Bantock outlived the spray and the chemical antiseptics applied to the peritoneum, and in his later days operated occasionally with sterilized water, instruments, and dressings. Most assuredly had aseptic methods as now practised, been at his service in the Eighties he would have had results even better than those he could claim, and did proclaim in his inaugural address.

In 1888 Dr. Bantock took an active part in a discussion at the Obstetrical Society on electrolysis in gynaecological practice. He actively condemned the Apostoli treatment, and declared that he had at the time no confidence in the method, failing to find evidence sufficient to convince him of its utility to anything like the extent claimed for it by its advocates; while he stood on one side with his mind still open to conviction, he was content to allow others to pursue it, provided it were done in a truly scientific spirit and free from the empiricism which at that date characterized it. The President (Sir John Williams) supported Bantock's view, as did many other authorities. It was made clear that Apostoli's results were quite unconvincing. Subsequent experience justified this unfavourable view of the method.

In purely manual dexterity Bantock excelled his distinguished predecessor and his able colleague, and to that fact, there can be no doubt, was due many good results, which would have been replaced by death or bad sequelae had the operator been slow, heavy-handed, and careless about clean water, sponges, and dressings. His plastic operating was admirable, and the short treatise, *Treatment of Ruptured Perineum*, was perhaps the best of his writings, which elsewhere consisted mostly of papers in the transactions of societies and articles in medical journals.

After retiring from the active staff of the Samaritan Hospital, Bantock practised in London for several years, and then moved to Pinner, Middlesex. For the last three or four years, spent in retirement, he lived at King's Norton, near Birmingham. His health rapidly failed last year, and he returned to London in the autumn.

Bantock was a very familiar figure in London twenty years ago. He was of medium height, and wore a long, pointed beard, which gave him a venerable aspect; in short, he was a handsome man of a very "professional" appearance. He was a skilled salmon fisher, having learnt the use of the rod and the fly in his early boyhood, and greatly distinguished himself in this respect in Canada during his tour in 1887.

Dr. Bantock was married, and leaves a family of four children, the eldest of whom, Mr. Granville Bantock, is known as an eminent musician.

On Saturday, January 18th, the funeral service was held at the Crematorium, Golder's Green; the ashes were deposited at Kensal Green in the afternoon.

WILLIAM TAYLOR COLBY, M.D., J.P.,

MALTON, YORKS.

THE death took place on December 22nd of Dr. William Taylor Colby, of Malton, a medical man equally well known both in social and professional circles in the North Riding of Yorkshire. One of the oldest members of the medical profession in the North of England, he was among the senior of those surviving students of St. Thomas's who attended its medical school in the days when it was in the borough. Dr. Colby was born in May, 1827, and entered St. Thomas's in his twenty-first year; he became M.R.C.S., L.S.A. in 1851, and took the M.D. degree of the University of St. Andrews at a later date. One of his contemporaries at St. Thomas's was Sir Thomas Boor Crosby, and those on the teaching staff under whom he directly served included Sir John Simon and Mr. Le Gros Clark. In other than medical connexions in Yorkshire, where he was known as a staunch Conservative in politics, he had attained corresponding seniority, for he was one of the oldest justices of the peace for the North Riding, and was among the first twenty-eight volunteers enrolled at Malton. They helped eventually to form the 2nd Volunteer Battalion of the Princess of Wales's Own Yorkshire Regiment. With this corps Dr. Colby remained connected for a very long period, and finally retired with the rank of Surgeon-Lieutenant-Colonel and the long service Volunteer decoration. Dr. Colby was an early member of the British Medical Association. He maintained his interest in gardening and sport. He himself was an excellent shot, and, despite his advanced age, had been out with the guns a month before his death. This took place when he was within four months of completing his eighty-sixth year, and was largely the outcome of anxiety over the illness of his eldest son. He had five children—three sons and two daughters, two of the former being members of the medical profession.

JAMES COULDREY, M.R.C.S.ENG., M.S.A.LOND.,

SCUNTHORPE, LINCOLNSHIRE.

WE regret to record the death of Dr. James Couldrey, which occurred at his residence, Fairholme, Scunthorpe, Lincolnshire, on St. Thomas's Day last, aged 62; he was unmarried. He was the third son of the late Mr. Thomas Couldrey of Abingdon, Berkshire, and was educated at the grammar school of his native town under the late Rev. Dr. Strange. On leaving school he was apprenticed to his cousin, Dr. Thomas Knight of Brill, Buckinghamshire. Subsequently he entered Charing Cross Hospital, London, where he had a brilliant career, gaining medals for materia medica and medicine. He became a Licentiate of the Society of Apothecaries of London in 1873 and later a Member. He took the diploma of M.R.C.S.Eng. in 1875. He was a member of the British Medical Association and of the Royal Society of Medicine. He was the oldest practitioner in Scunthorpe, having practised there thirty-

seven years. He had an extensive practice and held the appointments of Medical Officer and Public Vaccinator for the Scunthorpe district in the Glanford Brigg Union, of Certifying Factory Surgeon, and of Honorary Surgeon to the Frodingham Cottage Hospital. His contributions to the medical press included the record of a case of tetanus following burns (*Lancet*, 1879) and treatment of scarlet fever by sodium salicylate (*Lancet*, 1882). He was one of the first members of the St. Lawrence Lodge of Freemasons when it was formed at Scunthorpe, was a devout churchman, and was honoured by being the first churchwarden of the beautiful parish church built by the late Lord St. Oswald. He was very musical and a composer of several hymn tunes. In private life Dr. Couldrey was a man beloved by all who were brought into contact with him. A man of simple tastes, unassuming modesty, of generous and unselfish nature, his counsel was sought by many, and his hand was ever ready to help without ostentation those who were in need; he annually distributed charity to the widows of the district on St. Thomas's Day. He has left behind the fragrant memory of a good man.

The large funeral and the great number of wreaths bore sorrowful testimony to the general esteem in which he was held; he was borne to his last resting place by the churchwardens and sidesmen, while the flag of the church tower was hoisted at half-mast.

WE regret to announce the death of Dr. J. HERBERT FINEGAN, which took place recently at his residence in Liverpool, at the age of 75 years, after a brief illness. He was born in county Monaghan, Ireland, but was brought to Liverpool at a very early age, and received his scholastic education at the Liverpool Institute. At the age of fourteen he was apprenticed to Dr. Hill of Liverpool. Four years later he attended the Royal Infirmary, and obtained his first distinction, consisting of a two years' scholarship. From that onwards his career was steadily successful, not only in his profession, but as a spirited swimmer, yachtsman, marksman, and all-round sportsman. As a general medical practitioner, for a long time he lived in Rodney Street, but about two years ago removed to Upper Parliament Street. At his death he was the oldest practitioner in Liverpool, and the senior member of the Liverpool Medical Institution. He was for many years connected with the 64th L.R.V. (Liverpool Irish), of which he became Surgeon-Colonel. The following is a list of the distinctions which he gained in his profession and otherwise at various times: Scholarship at the Royal Infirmary and medal for midwifery; certificate of honour in practical chemistry; certificate of honour and medal for surgery at the Liverpool Royal Infirmary. He became a member of the Royal College of Surgeons of England in 1858, received the L.S.A. in 1859, and the M.D.St. Andrews in 1862. He obtained the bronze medal of the National Rifle Association in 1860, and was winner of the challenge cup for markmanship in the L.R.V., 1871. Dr. Finegan was also honorary surgeon to the Maternity Hospital, and on his retirement became consulting medical officer. He was known throughout his career as a man of genial and kindly disposition, always sympathetic with and ready to relieve distress and poverty. Though latterly his health was far from good, devotion to duty found him attending his patients until within a few days of his death.

DR. JAMES BARCLAY MONTGOMERY, of Penzance, Cornwall, who died on the night of Christmas Day, was born in 1829. He graduated M.D. in Glasgow in 1851, and took the diplomas of M.R.C.S.Eng. and L.R.C.S.Edin. in 1852: he became a Member of the Royal College of Physicians of London in 1859, and a Fellow in 1875. He settled in Penzance, and had a very wide and select practice, extending at one time from Truro to the Land's End. He was in that part the last of a fine type of general practitioner and consultant and physician in one, which is now everywhere dying out. He was honorary physician, with personal attention to out-patients and in-patients, at the West Cornwall Infirmary and Dispensary from 1856 to 1906. When, at his jubilee of office, he retired he was honoured with a presentation of plate and a purse. As a consultant physician his services were sought by medical men all over Cornwall. He was a J.P. for the borough of Penzance, but did not, outside his medical work, enter much into public life, though probably one of the best informed and most cultured men in the county. He was of a cheerful, witty disposition, with all the kindly courtesy of the physician of his time. The latter years of his life were, however, saddened by the loss of his only son, Dr. Hugh Montgomery, who had lived with him since 1886 and was associated with him in his practice. He nevertheless retained his marvellous memory for people and events and his love and knowledge for music until the end. His wife, with whom he lived so happily, survives him.

CAPTAIN JAMES MARTIN BUIST, R.A.M.C., who died on January 8th at Davos, Switzerland, aged 36 years, was the youngest son of the late Major-General D. S. Buist. He obtained the degrees of M.B., Ch.B.Edin. in 1899, and entered the service in December of the same year, becoming Captain in December, 1902.

Public Health AND POOR LAW MEDICAL SERVICES.

VITAL STATISTICS IN ENGLAND AND WALES (1912).

WE are indebted to the Registrar-General for the following statement showing the birth-rates and death-rates and the rate of infantile mortality in England and Wales, and in certain parts of the country during the year 1912.

ENGLAND AND WALES.

Birth-rates and Death-rates in the Year 1912 (Provisional Figures).

	Annual Rates per 1,000 Living.			Deaths under One Year to 1,000 Births.
	Births.	Deaths.		
		Crude.	Corrected*	
England and Wales...	23.8	13.3	13.3	95
95 great towns, including London	24.9	13.8	14.6	101
146 smaller towns ...	23.8	12.4	13.0	99
England and Wales, less the 241 towns	22.6	12.9	12.1	86
London	24.7	13.6	14.3	90

* The corrected death-rates are the rates which would have been recorded had the age and sex constitution of the populations of the several areas been identical with that of England and Wales as enumerated in 1901. The corrections applied to the crude rates have been necessarily based upon the constitution of the populations of the areas as enumerated in 1901, and are therefore only approximately applicable to the conditions of 1912.

Medical News.

PROFESSOR ARTHUR KEITH, Conservator of the Museum of the Royal College of Surgeons of England, has been elected President of the Royal Anthropological Institute of Great Britain and Ireland.

THE anniversary dinner of the Hunterian Society of London will be held at De Keyser's Hotel, Blackfriars Bridge, on Tuesday, February 4th, when the President, Mr. A. H. Tubby, will take the chair at 7.30 p.m.

THE *Times* states that Mr. Lloyd George has decided to appoint a committee to consider how far medical benefits under the Insurance Act should be extended to Ireland. Mr. H. T. Barrie will represent Irish Unionists on the committee.

On January 21st the Isle of Man House of Keys passed, by 17 votes to 5, the third reading of a Vaccination Amendment Bill, which contains clauses making it impossible for a person to be convicted twice in respect of the same unvaccinated child.

THE next Oxford Ophthalmological Congress will assemble on July 16th, and the business will be transacted on the two following days. A discussion on the present position of ophthalmology will be opened by Mr. Robert W. Doyne, Master of the Congress. Members who desire to take part in the discussion or to show cases and specimens are requested to communicate with the Honorary Secretary, Mr. Sydney Stephenson, 33, Welbeck Street, London, W.

THE King has authorized Dr. Llewellyn Powell Phillips, Professor of Medicine at the Medical School, Cairo, to accept and wear the Insignia of the the Third Class of the Imperial Ottoman Order of the Medjidieh conferred upon him by the Khedive of Egypt.

THE Lent term of lectures at the Royal Eye Hospital, Southwark, commenced on Tuesday last. The subsequent lectures will be given at 4.30 p.m. on every alternate Tuesday till April 1st. The course fulfils the conditions of Clause 4, Paragraph XXI, Section II of the Regulations of the Examining Board in England. Further particulars can be obtained on application to the Dean at the hospital.

MISS M. E. VERRALL, honorary treasurer of the Lady Chichester Hospital for Women and Children, writes to call attention to an omission from the account of it which was given in the course of an article on Brighton in the JOURNAL of January 4th, p. 34. In this account reference was made to two departments only of the work—the hospital for nerve cases in Brunswick place, and the out-patient department in Ditchling Road. It should have been said that at Ditchling Road there is a third department, a hospital for medical and surgical cases containing twelve beds. This was opened last November, and is quite full. Two houses have been made to communicate, the lower part being used for the out-patient department and the upper for the hospital.

ON the occasion of his retirement from the editorship of the *Bristol Medico-Chirurgical Journal* after twenty-one years of service Dr. Shingleton Smith was entertained at a complimentary dinner at Fortt's Restaurant on January 18th, by the members of the Bristol Medico-Chirurgical Society and other local medical men and afterwards presented with a picture, an antique silver salver, and an album with the names of the subscribers. Mr. N. C. Dobson, in making the presentation, thanked Dr. Shingleton Smith for all he had done for the profession during and since the foundation of the society in 1874. Mr. Richardson Cross, who also spoke, said that to no man did the local profession owe so much for his ceaseless energy on behalf of the society and *Journal* and during the early days of University College.

THE Home Secretary has appointed a committee to inquire and report as to the conditions necessary for the adequate and suitable lighting (natural and artificial) of factories and workshops, having regard to the nature of the work carried on, the protection of the eyesight of the persons employed, and the various forms of illumination. The members of the committee are: Dr. R. T. Glazebrook, C.B., F.R.S., Director of the National Physical Laboratory (Chairman); Mr. Leon Gaster; Dr. Francis Gotch, Professor of Physiology in Oxford; Mr. J. Herbert Parsons, Ophthalmic Surgeon to University College Hospital; Mr. W. C. D. Whetham, Fellow of Trinity College, Cambridge, well known as a writer on heredity, and Sir Arthur Whitelegge, K.C.B., M.D., Chief Inspector of Factories. The Secretaries of the Committee are Mr. D. R. Wilson, an inspector of factories, and Mr. C. C. Paterson, of the National Physical Laboratory. All communications should be addressed to Mr. Wilson at the Home Office.

A SERIES of lectures to advanced students and others interested in the subjects discussed will be given at the Lister Institute of Preventive Medicine, Chelsea Gardens, during February and March. The lectures are open to students of the university free, and others can obtain a card of admission on application to the Secretary of the Institute. The first lecture, to be given on Tuesday, February 4th, at 5 p.m., will appropriately deal with the early bacteriological work of Lord Lister, and will be given by the Director of the Institute, Professor C. J. Martin, F.R.S. On February 6th and 11th Dr. G. H. K. Macalister will deal with the various products of the tubercle bacillus used in diagnosis and treatment, and current views upon their mode of action; on February 13th and 18th Dr. J. A. Arkwright will lecture on some recent work on the agglutination of bacteria, with special reference to agglutination with acids; on February 20th and 25th Dr. J. Henderson will speak on recent work on haemolysis and serum-fast bacteria respectively; on February 27th and March 4th Dr. H. Maclean will lecture on lipoids; on March 6th Dr. H. Chick will deal with the subject of the laws governing disinfection by various agencies; and on March 13th and 18th Professor A. Harden, F.R.S., will lecture on the chemical action of bacteria—the chief types of chemical change produced by bacteria and the aid which can be obtained from chemical action in the identification and classification of bacteria and the enzymes concerned. The lectures will be given at 5 p.m. on each day.

Letters, Notes, and Answers.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

S. asks for results of experience of the value of hypnotism in stammering.

G. P. B. would be grateful to learn of a portable typewriter in which jarring of the fingers is reduced to a minimum. One suitable for use in neuritis of the arm, or writer's cramp, is required.

RECURRENT PHLEBITIS.

V. asks for suggestions as to the possible etiology, prophylaxis, and treatment of a case of recurrent phlebitis. The vein usually affected is the left internal saphenous vein. The first attack dates back nearly four years and was due to trauma, but the three or four subsequent attacks have been without ascertainable cause. The patient is a man aged 24, whose urine presents no abnormality, who is not constipated, and who, except for these attacks, is apparently perfectly healthy. There is no history of gout in the family, and his father and grandfather are both alive. Of the half-dozen doctors who have seen him none has been able to throw any light on the case. Most of the attacks have been below the knee.

ANSWERS.

BRAIN EXTRACT.

DR. W. MAULE SMITH (Worcestershire Asylum, Barnsley Hall, Bromsgrove) writes, in reply to Mr. Phiroze A. Dalal's request, contained in the JOURNAL of January 11th: I have to state that the extract is given by the mouth three times a day. The dose varies from two to four teaspoonfuls. In private practice I would recommend commencing with the former, but the latter is the routine dose given in asylum cases. Messrs. Martindale, New Cavendish Street, London, have placed the preparation on the market.

VARICOSE ULCERS.

DR. W. E. PAIN (London) writes: If "J. H. M." will apply hot boracic fomentations night and morning, bandage the leg with a crêpe bandage, taking internally a tablet of omnopon at night, which relieves pain without inducing constipation or headache, giving a dose of magnesium sulphate every morning, his ulcer will soon get well. I have been the means of curing a great number by using hot calamine, when there is much irritation, for the hot fomentation and bandaging.

LETTERS, NOTES, ETC.

THE RISK OF ECLAMPSIA RECURRING IN A SUBSEQUENT CONFINEMENT.

"A VILLAGE DOCTOR" writes: Dr. Athelstane Nobbs's most unfortunate experience (BRITISH MEDICAL JOURNAL, January 4th, 1913, p. 19) might, in my limited experience, be considerably mitigated should the general practitioner take up a bolder attitude in dealing with such cases on the recurrence of pregnancy. I happen to be the village doctor he mentions in Case I, and immediately after attending her I delivered another case single-handed by vaginal Caesarean section, and she got quite well. Just at the same time as Dr. Nobbs's Case I became pregnant a second time my own case also became pregnant. I was aware that she had had eclampsia during her two previous pregnancies from her history and my own previous experience of her. I therefore sent her to a maternity hospital and strongly urged the authorities there to induce abortion. My humble suggestion was absolutely ignored, and she was sent home. On my own responsibility, I induced abortion at the third month, and she got absolutely well. The ultimate result, compared with Dr. Nobbs's case, created a deep impression on my mind. I have therefore made it a rule that, should a previously eclamptic patient in her next pregnancy show any sign of renal inefficiency which does not immediately yield to general treatment, the uterus should be emptied at once, and should a patient have shown eclampsia in her two preceding pregnancies gestation should on no account be allowed to proceed in her next beyond the third month.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Eight lines and under	0	4	0
Each additional line	0	0	6
A whole column	2	13	4
A page	8	0	0

An average line contains six words.

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Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.